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Dr. JOHN S. BILLINGS.

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EIGHTH ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS,

OF THE

CITY OF SAINT PAUL.

DECEMBER 1, 1889.

EIGHTH ANNUAL REPORT

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OFFICERS

OF THE

CITY WATER WORKS,

DECEMBER 1, 1889.

BOARD OF WATER COMMISSIONERS:

J. F. HOYT, *President*,
WM. LINDEKE,
C. D. GILFILLAN,
P. H. KELLY,
J. W. BISHOP.

JOHN CAULFIELD, *Secretary*.
JOHN B. OVERTON, *Superintendent*.
S. P. FOLSOM, *Attorney*.
MARTIN FEIST, *Engineer of Pumping Station*.
DANIEL CURRY, *Ass't Eng. of Pumping Station*.

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EIGHTH ANNUAL REPORT

OF THE

BOARD OF WATER COMMISSIONERS

OF THE

CITY OF SAINT PAUL,

FOR THE YEAR ENDING NOVEMBER 31ST. 1889.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 2, 1889.

To the Honorable the Mayor and the Common Council of the City of St. Paul:

GENTLEMEN: Herein please find the Eighth Annual Report of the Board of Water Commissioners, being for the year ending November 30th, 1889.

Some items of leading interest, taken principally from the papers and reports which follow this, are here noted:

The bonded indebtedness of the city on account of the Water Works now amounts to $2,360,000, annual interest on same, $110,200.

New service connections put in this year, 1,818, being an increase over last year of 600. Total service connections to date, 9,052, of which 4,721 are on low, and 4,331 on high service.

Thirty-seven plumbers were granted licenses during the year.

There are now in use 1,471 fire hydrants, 186 sprinkling hydrants, and 1,479 gates.

Water mains laid during the season, 35 miles 4,963 feet. Total mains now in, 166 miles and 2,487 feet. Estimated to be laid in 1890, 21 miles, which will probably be exceeded.

At the pumping station 704 tons of coal have been used; 658,458,400 gallons water pumped. Daily average, 1,804,000 gallons.

The Board has answered the Secretary's call for more water meters by authorizing their purchase and use in greater quantities. Too much cannot be said for the water meter. It is the great *economizer* on all water works.

Our friends in the Sixth Ward ask for the high service. If in this climate water pipes could be carried across the river on one of the bridges, or if these high pressure mains could be prudently buried in the bed of the river, the *elevation* of a considerable portion of the Sixth Ward and of a large portion of territory destined soon to be a part of this city, would be too great for any useful or satisfactory supply obtained in this way. The present plan for this service is, during the coming summer to select locations and build pumping houses and reservoirs. The grading of the streets in the district can be accomplished during the same time, thus making all ready for the machinery and mains early in the spring following—as soon as the field can be prepared and the work prudently accomplished. Water will be taken from the gravity supply now on many of the streets in the ward. The pump to be used will be removed from the station at McCarron's Lake, where it will be no longer needed, a new and much larger one there being necessary in its place.

As intimated above, in the spring of 1891 we shall want to be reinforced at the present station by a ten-million-gallon pump. The contract for this should be let the coming spring. Following, and as a part of this enlargemeut of the system, will be the laying of another high service main from the pumping station south to Maryland street, and thence, mains east and west to strengthen the works in these directions.

Mr. Folsom gives his views on our water supply, and describes fully the new works which connect us with the Rice Lake district. His tact and energy in procuring the right-of-way and his general supervision of the improvement we wish here to commend.

The water supply for cities in this country is to become the first study of engineers, and the price of great sums of money. Water is a commodity that unfortunately decreases with the demand for it. That is, the *city* grows, the streams and lakes about it, its natural and cheap sources of supply, with the improvement and settlement of the country, diminish. Added to this difficulty in the planning of water works is the great and disproportionate increase in the use of water over the increase in population. This is the situation with us now. Water works are never finished. The investigations into possible future needed supplies should never cease. It is not enough to feel safe on calculations of the average rain fall, but the extreme of an occasional drouth has to be provided against. Our level and marshy rain-receiving area is slow to respond to the rain fall after a dry season, but it is productive of good results during such a season, as instance, the present. None but cities depending on great lakes or rivers of the first magnitude can avoid occasional shortage in their water supplies. We have no mean lake area to call upon, and we lie between two very considerable rivers. We feel, with the return of the average rainfall, that our lakes, properly utilized, can be depended on for many years. Eventually, when needed, or as provision against a dry season, one of these rivers can be made to supplement the lake supply.

Our people should remember that the rain fall in this country is far below that in the eastern states—making the cost of water here the greater—and that the expense of putting in, maintaining and operating water works here is

much greater than with them. With these considerations in view the board feels warranted in always insisting upon economy in the use of water. Every gallon of water brought into the city costs money. Every gallon wasted is a waste of money. On the other hand, while the strictest economy in the use of water should be practiced, no *beggarly* parsimony should rule in the use of skill, labor or money in procuring it.

Respectfully submitted,

J. F. HOYT,
CHARLES D. GILFILLAN,
J. W. BISHOP,
WILLIAM LINDEKE,
P. H. KELLY.

SECRETARY'S REPORT.

OFFICE OF THE BOARD OF WATER COMMISSIONERS,
ST. PAUL, December 1, 1889.

To the President and Members of the Board of Water Commissioners:

GENTLEMEN:—I respectfully submit to your honorable board my eighth annual report, with accompanying statements, showing in detail, under appropriate heads, the financial operations of the Water Department for the year ending November 30, 1889. Also comparative statements of receipts and disbursements from August 10, 1882 (the time of the purchase of the works by the city) to date:

REVENUE.

Cash on hand December 1, 1888		$15,457.70
General water receipts	$188,373.64	
Miscellaneous water receipts	23,298.32	
Connections (street services)	40,418.34	
Extensions	3,929.72	
Shutting off and turning on water (penalties)	170.00	
Repairs	61.15	
Construction (new supply)	502.91	
Bonds	360,000.00	
Interest (premium and accrued interest on bonds sold)	13,201.10	
Frontage tax	55,066.01	
		685,021.19
Total		$700,478.89

DISBURSEMENTS.

General maintenance	$26,122.69	
Connections (street service)	32,037.65	
Repairs	4,559.45	
Meters	3,384.42	
Extension	275,680.58	
Construction	80,690.69	
Interest	108,732.97	
Frontage tax (refunded)	150.35	
Bond (old water company's bonds paid)	160,000.00	
Total		$691,358.80
Balance		$9,120.09

The general water receipts, including high and low service, and meters, were $188,373.64, an apparent increase of $58,334.24, but from this should be deducted $19,155.25 and added to last year's receipts, being amount due by the city of St. Paul for water for fire purposes to June 1, 1888, as explained in my last report, leaving an actual increase of $20,023.74, of which $9,402.07 was from high service, $10,487.39 from low service and $134.28 from meter consumers.

The miscellaneous receipts from builders, water carts, hydrant streams for flushing sewers, etc., filling cisterns and for sprinkling streets, were $23,298.32.

Extension account is credited with $3,929.72, of which $288.00 was received from the sale of 576 loads of rock taken from the pipe trenches; $893.97 for scrap iron sold, and $1,326.97 from St. Paul & Northern Pacific R. R. Co. for laying water mains from Lexington avenue through their private grounds to their shops; $213.34 from the same company for expense changing water main at Lafayette avenue bridge crossing; $13.25 for oil barrels, gate and gate box sold; $380.73 from the City Railway Company for changes to mains, etc., at the terminus of the Seventh street cable line; $45.68 from E. J. Kirkland, contractor, for damages caused water mains in constructing L'Orient street sewer; $731.25 from city of St. Paul and private parties for expense raising and changing water mains on Lafayette avenue, Smith and Banfil and Mississippi streets, caused by changes of grades on those streets, and $36.53 retained and unclaimed on the pay rolls for the year.

Repair account is credited with $61.15 received from contractors for damages to water mains while constructing sewers.

Construction account is credited with $502.91 received from the Minneapolis & "Soo" Railroad Co., being the award of commissioners for land taken for right-of-way through the pumping station grounds.

INTEREST, REPAIRS, EXTENSION, GENERAL MAINTENANCE AND OTHER ACCOUNTS.

$108,732.97 has been paid on account of interest on bonds; $4,559.45 for repairs of mains, hydrants and valves, caused principally by change of grade of

streets, causing relaying of mains and resetting of hydrants; $26,122.69 on account of general maintenance, of which $6,643.51 was for maintaining the pumping station and gate, of which $2,560.00 was for salaries; $3,693.55 for fuel, $93.95 for machine oil and waste, $54.90 for kerosene oil for lighting, and $241.11 for insurance, tools and repairs, leaving a balance of $19,479.18 for salaries of all officers, employes, office expenses, fuel, stationery and all other expenses necessary for maintaining the works.

$3,384.42 was paid for meters and labor.

$32,037.65 for labor, lead pipe, brass goods, tools and stop cock boxes for street services.

$275,680.58 was paid on account of city extensions, of which $160,761.63 was for cast iron pipe and specials; $76,150.48 for laying water mains, $13,135.95 for fire hydrants, $10,394.95 for valves and valve boxes, $9,332.59 for pig lead and hemp packing, and $5,904.98 for tools, blacksmithing and supplies.

$80,690.69 was paid on account of construction, of which $49,882.75 was on account of the high service reservoir; $11,000.82 for engineering and right of way, $17,763.04 for labor and on account of new pumping station and canal at Baldwin Lake, and $2,044.08 for lumber and other supplies.

All work, except the construction of the new pumping station and canal has been done by day's work, as usual. The pay rolls for the year amounted to $117,554.78, and the average monthly employes has been 254.

CONTRACTS.

Contracts have been let during the year amounting to $238,744.67, of which $229,214.19 has been paid, leaving a balance due of $9,530.48; $6,000.00 will be due the Deane Steam Pump Co. when pump is completed and tested, and $3,530.48 due McArthur Bros. for pump house and canal when completed and accepted.

On December 1, 1888, there was $45,834.03 due McArthur Bros., contractors, for high service reservoir, on which $44,483.58 has been paid during the past year, leaving a balance of $1,350.45 due, which will be paid upon the filing of the proper receipts and releases by the contractors.

BONDED DEBT.

The bonded debt of the city for water works purposes has been increased during the year by the issue of $200,000.00 of 4½ per cent bonds.

The $160,000.00 of old water company's 8 per cent bonds have been paid during the year by the issue of an equal amount of 4½ per cent city bonds, a saving of $5,600 annually in interest.

The present bonded debt is $2,360,000.00, the annual interest is $110,200.00, and is paid from the revenues of the works.

FRONTAGE TAX.

There has been collected during the year by the County Treasurer $55,066.01 on account of frontage tax, of which $404.69 was for the tax of 1884, 1885 and 1886, $2,198.63 for 1887, and $52,462.69 for the year 1888, leaving a balance due of $6,076.41, of which $978.84 is for years 1884, 1885 and 1886, $2,323.24 for 1887 and $3,473.09 for 1888.

The frontage tax assessment for 1889 has been made, and is now in the hands of the County Treasurer for collection, amounting to $76,706.21.

METERS.

There are now in use 354 meters, an increase of 70 over last year.

SERVICES.

During the year 1,818 applications have been made for service connection, of which 491 were on low or gravity service, and 1,327 on high service. The total number of applications to date is 9,052, of which 4,721 are in low and 4,331 in high service, an increase of 7,044 since the city purchased the works in 1882.

PLUMBING.

Thirty-seven plumbers were granted licenses during the year and 2,424 permits were issued to them to do work in connection with the introduction and extension of water services, as against 1,707 in 1888, 1,610 in 1887, 1,497 in 1886, 1,454 in 1885 and 718 in 1884. The inspection of all their work has been very satisfactorily performed, and the plumbers deserve credit for their willingness to comply with our regulations.

CONCLUSION.

I desire to return my thanks to the Board and to the officers for their uniform kindness and assistance rendered me in the performance of my duties, and to all the employes for the prompt and satisfactory manner in which they have performed their several duties.

Respectfully submitted,

JOHN CAULFIELD,

Secretary.

TRIAL BALANCE DECEMBER 1, 1889.

Account.	Dr.	Cr.
St. Paul Water Works (original purchase)	$510,000.00	
Bond account		$2,360,000.00
General water receipts		825,254.42
Miscellaneous water receipts		135,396.75
Connection account (street services)		15,231.16
Extension account	1,344,681.19	
General maintenance account	130,010.27	
Repair account	28,222.66	
Meter account	13,455.68	
Construction account	981,193.80	
Interest account	482,071.35	
Geo. Reis, City Treasurer	9,120.09	
Shutting off and turning on water		821.00
Frontage tax		162,051.71
Total	$3,498,755.04	$3,498,755.04

RECEIPTS AND DISBURSEMENTS FROM DECEMBER 1, 1888, TO DECEMBER 1, 1889.

RECEIPTS.				
Balance December 1, 1888				$15,457.70
General water receipts, high service		$36,968.72		
" " low service		114,864.37		
" " meters		36,540.55		
			$188,373 64	
Miscellaneous receipts, builders		5,753.11		
" " water carts		219.45		
" " flushing sewers & hydrant streams		591.80		
" " filling cisterns		2,186.81		
" " sprinkling streets		14,547.15		
			23,298.32	
Connections—services			40,418.34	
Extension			3,929.72	
Shutting off and turning on water (penalties)			170.00	
Repairs			61.15	
Construction			502.91	
Bonds			360,000 00	
Interest (premium and accrued interest on bonds sold)			13,201.10	
Frontage tax			55,066.01	
				685,021.19
Total receipts				$700,478.89
DISBURSEMENTS.				
General Maintenance—				
Salaries		$15,391.26		
Stationery and printing		1,438.40		
Miscellaneous		232.42		
Labor		3,700.07		
Material		4,745.36		
Stable { Feed		377.58		
Stable { Repairs		237.60		
			$26,122.69	
Connections—				
Labor		$16,052.77		
Pipe		10,015.39		
Brass goods and stop boxes		4,993.57		
Tools and miscellaneous		975.92		
			32,037.65	
Repairs—				
Hydrants { Labor	$3,846.07			
Hydrants { Material	15.95			
		$3,862.02		
Valves { Labor	$39.88			
Valves { Material	44.99			
		84.87		
Mains { Labor	$602.56			
Mains { Material	10.00			
		612.56		
			4,559.45	
Meters—				
Labor		$1,325.79		
Freight and meters		2,058.63		
			3,384.42	
Extensions—				
Pipe and special castings		$160,761.63		
Labor and contracts		76,150.48		
Tools and repairs of same		2,647.76		
Advertising		114.89		
Fire hydrants		13,135.95		
Valves and valve boxes		10,394.95		
Lead and hemp packing		9,332.59		
Lumber and material		3,044.17		
Miscellaneous		98.16		
			275,680.58	
Construction, New Supply—				
Labor and contracts		$17,763.04		
Tools and repairs of same		21.88		
Lumber and material		1,068.66		
Engineering and right of way		11,000.82		
Miscellaneous and building account		953.54		
Reservoir		49,882.75		
			80,690.69	
Interest			108,732.97	
Frontage tax (refunded)			150.35	
Bonds			160,000.00	
				$691,358.80
Balance				$9,120.09

RECEIPTS AND DISBURSEMENTS FROM AUGUST 10, 1882, TO DECEMBER 1, 1889.

RECEIPTS.			
General water receipts, high service	$109,988.22		
" " low service	491,992.28		
" " meters	223,273.92		
		$825,254.42	
Miscellaneous receipts, builders	23,597.59		
" " water carts	3,466.88		
" " flush. sewers & hydr't streams	3,872.86		
" " filling cisterns	14,916.45		
" " sprinkling streets	89,542.97		
		135,396.75	
Connections, services		165,738.98	
Extension		20,996.87	
Shutting off and turning on water (penalties)		821.00	
Repair		3,057.99	
Bills payable		493,000.00	
Construction, new supply		1,501.83	
Bonds		2,010,000.00	
Interest, premium and accrued int. on bonds sold		61,382.38	
Frontage tax		162,432.68	
Total receipts			$3,879,582.90
DISBURSEMENTS.			
General Maintenance—			
Salaries	$81,467.96		
Stationery and printing	5,208.88		
Miscellaneous	2,234.07		
Labor	13,602.71		
Material	23,877.54		
Stable { Feed	2,279.70		
Stable { Repairs	1,313.16		
		$129,984.02	
Connections—			
Labor	$79,567.43		
Pipe	43,674.37		
Brass goods and stop boxes	22,960.78		
Tools and miscellaneous	4,304.49		
		150,507.07	
Repairs—			
Hydrants { Labor $16,411.13			
Hydrants { Material 1,054.52			
	$17,465.65		
Valves { Labor $203.15			
Valves { Material 186.57			
	389.72		
Mains { Labor $12,164.43			
Mains { Material 1,389.70			
	13,554.13		
		31,409.50	
Meters—			
Labor	$3,443.17		
Freight and meters	9,883.51		
		13,326.68	
Extensions—			
Pipe and special castings	$735,723.95		
Labor and contracts	422,866.09		
Tools and repairs of same	14,001.27		
Advertising	218.02		
Fire hydrants	68,448.95		
Valves and valve boxes	59,780.16		
Lead and hemp packing	48,527.81		
Lumber and material	13,302.02		
Miscellaneous	3,049.36		
		1,365,917.63	
Construction, New Supply—			
Pipe and special castings	$174,985.58		
Labor and contracts	466,613.80		
Tools and repairs of same	4,741.83		
Lumber and material	69,606.46		
Freight	9,352.78		
Engineering and right of way	96,099.47		
Miscellaneous and building account	16,051.14		
Reservoir	145,032.15		
		982,483.21	
Interest		543,453.73	
Frontage tax (refunded)		380.97	
Bonds		160,000.00	
Bills payable		493,000.00	
Total disbursements			$3,870,462.81
Balance			$9,120.09

STATEMENT SHOWING AMOUNT PAID THE CITY TREASURER AND WARRANTS DRAWN AGAINST SAME FROM DECEMBER 1, 1888, TO DECEMBER 1, 1889.

1888—				
December 1...	Balance in treasury as per last report.....			$15,457.70
" 8...	Cash.....	$5,000.00		
" 11...	"	3,500.00		
" 17...	"	2,000.00		
" 21...	"	1,500.00		
1889—			$12,000.00	
January 2.....	"	$4,000.00		
" 24.....	"	11,000.00		
" 31.....	Proceeds of $260,000 4½ per cent bonds, premium and accrued interest.....	263,448.60		
			278,448.60	
February 25..	Cash.....	$10,000.00		
" 27..	"	5,000.00		
			15,000.00	
March 25.....	"	$5,000.00		
" 27.....	Cash from county treas. on acct. front. tax...	3,264.97		
" 28.....	Cash.....	10,000.00		
			18,264.97	
April 6.....	"	$9,000.00		
" 15.....	"	2,500.00		
" 26.....	"	3,500.00		
			15,000.00	
May 22.....	Proceeds of $100,000 4½ per cent bonds, premium and accrued interest.....	$109,752.50		
" 31.....	Cash.....	5,000.00		
			114,752.50	
June 11.....	"	$11,000.00		
" 22.....	"	5,000.00		
" 27.....	"	23,155.25		
			39,155.25	
July 1.....	"	$3,000.00		
" 18.....	Cash from county treas. on acct. front. tax...	49,713.95		
" 29.....	Cash.....	7,000.00		
			59,713.95	
August 22.....	"	$5,000.00		
" 28.....	"	5,000.00		
			10,000.00	
September 4..	"	$22,284.55		
" 21..	"	5,000.00		
" 27..	"	6,000.00		
			33,284.55	
October 1.....	"	$2,000.00		
" 7.....	"	15,000.00		
" 8.....	"	24,908.10		
" 28.....	"	13,000.00		
			54,908.10	
November 1..	"	$10,000.00		
" 7..	"	5,000.00		
" 15..	Cash from county treas. on acct. front. tax...	2,087.09		
" 22..	Cash.....	10,000.00		
" 28..	"	7,406.18		
			34,493.27	
				685,021.19
	Total.....			$700,478.89

WARRANTS DRAWN AGAINST SAME.

1888—				
December 1	Warrant No. 3402	$5,190.27		
" 7	" 3403 to 3435 inclusive	21,871.74		
" 15	" 3436 to 3439 "	393.06		
1889—			$27,455.07	
January 1	" 3440 to 3442 "	$17,229.34		
" 11	" 3443 to 3475 "	25,291.27		
" 29	" 3476	160,000.00		
			202,520.61	
February 1	" 3477	$3,764.07		
" 11	" 3478 to 3507 inclusive	4,496.83		
			8,260.90	
March 1	" 3508	$3,771.60		
" 11	" 3509 to 3533 inclusive	9,865.65		
" 23	" 3534 to 3535	49,099.06		
			62,736.31	
April 1	" 3536	$4,809.49		
" 6	" 3537 to 3582 inclusive	45,874.72		
" 11	" 3583	427.00		
			51,111.21	
May 2	" 3584	$11,948.67		
" 8	" 3585 to 3634 inclusive	46,205.82		
" 14	" 3635 to 3638 "	151.66		
			58,306.15	
June 1	" 3639	$17,026.15		
" 4	" 3640 to 3666 inclusive	66,815.22		
" 21	" 3667 to 3693 "	16,944.97		
			100,786.34	
July 1	" 3694	$16,281.36		
" 9	" 3695 to 3741 inclusive	21,329.77		
			37,611.13	
August 1	" 3742	$14,294.10		
" 3	" 3743 to 3782 inclusive	8,372.60		
" 7	" 3783 to 3789 "	117.85		
" 19	" 3790 to 3794 "	797.50		
" 27	" 3795 to 3797 "	3,794.79		
			27,376.84	
September 2	" 3798	$14,163.55		
" 10	" 3799 to 3845 inclusive	10,519.75		
" 21	" 3846	800.00		
			25,483.30	
October 1	" 3847	$11,278.49		
" 7	" 3848 to 3889 inclusive	38,685.77		
" 21	" 3891	1,000.00		
" 25	" 3890	354.00		
			51,318.26	
November 1	" 3892 to 3909 inclusive	23,557.74		
" 7	" 3910 to 3945 "	4,597.24		
" 14	" 3946 to 3948 "	345.16		
" 22	" 3949 to 3951 "	9,892.54		
			38,392.68	
	Total warrants drawn			$691,358.80
	Balance in city treasury			$9,120.09

BOND ACCOUNT,

Date of Legislative Acts Authorizing Issue of Bonds.	Amount of Bonds Authorized	Date of Bonds Issued.	When due.	Amount of Bonds Issued.	Rate.
February 10, 1881	$ 600,000	June 1, 1882	30 years	$ 350,000	4 per cent
January 26, 1883	500,000	August 1, 1883	30 years	150,000	5 per cent
February 21, 1885	800,000	April 1, 1884	25 & 30 years	600,000	5 per cent
January 31, 1887	200,000	April 1, 1885	30 years	400,000	5 per cent
January 31, 1887	160,000	May 2, 1887	30 years	200,000	4½ " cent
March 29, 1889	300,000	March 1, 1888	30 years	300,000	4½ " cent
		January 1, 1889	30 years	100,000	4½ " cent
		January 2, 1889	30 years	160,000	4½ " cent
		May 1, 1889	30 years	100,000	4½ " cent
	$2,560,000			$2,360,000	

DECEMBER 1, 1889.

INTEREST PAYABLE.												Total Annual Interest.
Dec. 1.	Jan. 2.	Feb. 1.	Mch. 2.	April 1.	May 2.	June 1	July 2.	Aug. 1.	Sept. 1.	Oct. 1.	Nov. 2.	
$7,000	.....	.....	.....	.....	.....	$7,000	.....	.....	.....	.....	.....	$14,000
.....	.....	$3,750	.....	.....	.....	.....	.....	$3,750	.....	.....	.....	7,500
.....	.....	.....	.....	$15,000	.....	.....	.....	.....	.....	$15,000	.....	30,000
.....	.....	.....	.....	10,000	.....	.....	.....	.....	.....	10,000	.....	20,000
.....	.....	.....	.....	.....	4,500	.....	.....	.....	.....	.....	4,500	9,000
.....	.....	.....	6,750	.....	.....	.....	.....	.....	$6,750	.....	.....	13,500
.....	$2,250	.....	.....	.....	.....	.....	$2,250	.....	.....	.....	.....	4,500
.....	3,600	.....	.....	.....	.....	.....	3,600	.....	.....	.....	.....	7,200
.....	.....	.....	.....	.....	2,250	.....	.....	.....	.....	.....	2,250	4,500
$7,000	$5,850	$3,750	$6,750	$25,000	$6,750	$7,000	$5,850	$3,750	$6,750	$25,000	$6,750	$110,200

CONTRACTS MADE BY THE BOARD OF WATER COMMISSIONERS FROM DECEMBER 1. 1888, TO DECEMBER 1, 1889.

Date of Contract.	With Whom and for What Purpose—	Amount of Contract	Amount Paid.	Amount Due.
1888—				
December 1...	S. J. Harper, removing earth on hill over conduit at New Canada	$843.36	$843.36	.....
December 22..	R. D. Wood & Co., Philadelphia, Pa., fire hydrants	13,114.95	13,114.95	.....
1889—				
January 24...	Shickler, Harrison & Howard Iron Co., St. Louis, Mo., cast iron pipe	160,403.16	160,403.16	.....
January 25...	A. W. Morgan Manufacturing Co., Buffalo, N. Y., valve and stopcock boxes	7,300.25	7,300.25	.....
January 25...	Galvin Valve and Hydrant Co., Detroit, Michigan, taps and stop cocks	1,273.05	1,273.05	.....
January 25...	Galvin Valve and Hydrant Co., Detroit, Michigan, valves	6,025.70	6,025.70	.....
February 6...	Geo. J. Exley, St. Paul, drayage	3,134.50	3,134.50	.....
February 18..	C. Allison, St. Paul, dwelling house at high service reservoir	2,087.00	2,087.00	.....
March 23.....	Hodgman Bros., St. Paul, 50 tons pig lead	3,551.99	3,551.99	.....
March 23.....	F. E. Duncan, St. Paul, 40 tons lead pipe	3,518.94	3,518.94	.....
May 15.....	Vanderwarker & Acker, St. Paul, coal	3,157.93	3,157.93	.....
May 16..	Northwestern Shot Co., St. Paul, 60 tons pig lead	4,529.81	4,529.81	.....
May 16	H. C. McNair, St. Paul, 50 tons lead pipe	4,151.61	4,151.61	.....
August 24.....	Deane Steam Pump Co., Holyoke, Mass., pump, boiler, etc.	8,000.00	2,000.00	$6,000.00
September 16	McArthur Bros., St. Paul, canal, etc., between Charles and Baldwin Lake, and pump house at Baldwin Lake	17,652.42	14,121.94	3,530.48
	Total	$238,744.67	$229,214.19	$9,530.48

CONTRACTS MADE PREVIOUS TO DECEMBER 1, 1888, AND NOT COMPLETED AT TIME OF LAST ANNUAL REPORT.

Date of Contract.	With Whom and for What Purpose—	Amount due Dec. 1, 1888.	Amount Paid.	Amount Due.
1887—				
December 5...	McArthur Bros., St. Paul, high service reservoir. Total amount of contract $127,993.50 Amount paid in 1888 ..... 82,159.47	$45,834.03	$44,483.58	$1,350.45

CONTRACTS MADE BY THE BOARD OF WATER COMMISSIONERS FROM DECEMBER 1, 1888, TO DECEMBER 1, 1889.

Date of Contract.	With Whom and for What Purpose—	Amount of Contract	Amount Paid.	Amount Due.
1888—				
December 1...	S. J. Harper, removing earth on hill over conduit at New Canada	$843.36	$843.36	.....
December 22..	R. D. Wood & Co., Philadelphia, Pa., fire hydrants	13,114.95	13,114.95	.....
1889—				
January 24...	Shickler, Harrison & Howard Iron Co., St. Louis, Mo., cast iron pipe	160,403.16	160,403.16	.....
January 25...	A. W. Morgan Manufacturing Co., Buffalo, N. Y., valve and stopcock boxes	7,300.25	7,300.25	.....
January 25...	Galvin Valve and Hydrant Co., Detroit, Michigan, taps and stop cocks	1,273.05	1,273.05	.....
January 25...	Galvin Valve and Hydrant Co., Detroit, Michigan, valves	6,025.70	6,025.70	.....
February 6...	Geo. J. Exley, St. Paul, drayage	3,134.50	3,134.50	.....
February 18..	C. Allison, St. Paul, dwelling house at high service reservoir	2,087.00	2,087.00	.....
March 23.....	Hodgman Bros., St. Paul, 50 tons pig lead	3,551.99	3,551.99	.....
March 23.....	F. E. Duncan, St. Paul, 40 tons lead pipe	3,518.94	3,518.94	.....
May 15.....	Vanderwarker & Acker, St. Paul, coal	3,157.93	3,157.93	.....
May 16..	Northwestern Shot Co., St. Paul, 60 tons pig lead	4,529.81	4,529.81	.....
May 16	H. C. McNair, St. Paul, 50 tons lead pipe	4,151.61	4,151.61	.....
August 24.....	Deane Steam Pump Co., Holyoke, Mass., pump, boiler, etc	8,000.00	2,000.00	$6,000.00
September 16	McArthur Bros., St. Paul, canal, etc., between Charles and Baldwin Lake, and pump house at Baldwin Lake	17,652.42	14,121.94	3,530.48
	Total	$238,744.67	$229,214.19	$9,530.48

CONTRACTS MADE PREVIOUS TO DECEMBER 1, 1888, AND NOT COMPLETED AT TIME OF LAST ANNUAL REPORT.

Date of Contract.	With Whom and for What Purpose—	Amount due Dec. 1, 1888.	Amount Paid.	Amount Due.
1887—				
December 5...	McArthur Bros., St. Paul, high service reservoir. Total amount of contract $127,993.50 Amount paid in 1888 ..... 82,159.47	$45,834.03	$44,483.58	$1,350.45

Number of Vouchers.	Month.	Total Amount.	General Maintenance				Tools and Repair Same
			Salaries.	Stationery and Printing	Miscellaneous.	Labor.	
3402 to 3439, inclusive...	December, 1888	$27,455.07	$1,225.82	$38.05	$16.00	$167.14	$70.4
3440 to 3476 "	January, 1889..	202,520.61	1,230.23	140.45	14.25	215.75	68.2
3477 to 3507 "	February, 1889	8,260.90	1,193.32	71.90	21.75	211.50	70.7
3508 to 3535 "	March, 1889.....	62,736.31	1,193.32	85.10	19.99	180.18	42.5
3536 to 3583 "	April, 1889.....	51,111.21	1,493.32	101.31	18.13	216.37	458.8
3584 to 3638 "	May, 1889.....	58,306.15	1,395.82	107.28	5.70	848.75	386.9
3639 to 3693 "	June, 1889.....	100,786.34	1,190.82	46.95	6.43	262.63	139.2
3694 to 3741 "	July, 1889.....	37,611.13	1,262.32	567.10	22.00	189.25	1,063.1
3742 to 3797 "	August, 1889....	27,376.84	1,345.82	48.40	60.31	256.25	66.8
3798 to 3846 "	September, 1889	25,483.30	1,312.07	67.65	32.25	517.75	128.7
3847 to 3891 "	October, 1889...	51,318.26	1,215.82	21.48	.....	228.00	75.4
3892 to 3951 "	November, 1889	38,392.68	1,332.49	142.73	15.61	406.50	76.8
Total.....	.....	$691,358.80	$15,391.26	$1,438.40	$232.42	$3,700.07	2,647.7

From August 10, 1882 to Dec. 1, 1882....	$25,937.61	$786.10	$239.13	$187.59	$419.62	$22.2
From December 1, 1882, to Dec. 1, 1883	336,959.86	3,787.00	558.90	349.65	1,774.93	1,047.0
From December 1, 1883, to Dec. 1, 1884	909,902.70	8,773.67	521.39	322.15	1,099.61	2,292.2
From December 1, 1884, to Dec. 1, 1885	522,971.24	12,311.70	465.29	245.40	1,449.14	1,686.5
From December 1, 1885, to Dec. 1, 1886	310,326.31	11,836.17	458.07	330.14	1,262.60	1,955.0
From December 1, 1886, to Dec. 1, 1887	527,528.68	13,714.47	716.59	306.35	1,539.07	1,813.1
From December 1, 1887, to Dec. 1, 1888	545,477.61	14,867.59	811.11	260.37	2,357.67	2,536.0
From December 1, 1888, to Dec. 1, 1889	691,358.80	15,391.26	1,438.40	232.42	3,700.07	2,647.7
Total.....	$3,870,462.81	$81,467.96	$5,208.88	$2,234.07	$13,602.71	4,001.1

STATEMENT SHOWING AMOUNT DUE THE WATER BOARD ON DECEMBER 1, 1889.

	From City of Saint Paul—		
	Water for fire purposes for six months to Dec. 1 1889	$29,273.83	
	Premium received and retained by the city on the $160,000 of bonds issued in January last to redeem the bonds of the Old St. Paul Water Company of like amount, assumed by the city at time of purchase of the works	5,393.77	
August 10, 1882	Repairing main on Lafayette avenue, caused by sewer contractor	12.56	
August 29, 1882	Repairing gate box on East Seventh street, caused by paving contractor	5.25	
Seeptember 6, '82	Repairing main on Westminister street, caused by sewer contractor	1.75	
June 9, 1884	Repairing main on Robert street, caused by settling of service sewer	54.86	
September 2, 1884	Repairing of main on Pearl street, caused by settling of service sewer	20.21	
August 6, 1886	Repairing main on Summit and Selby, caused by sewer contractor	8.00	
November 18, 1886	Balance due for repairing main in Becker Place, caused by sewer contractor	10.00	
December 18, 1887	Water for flushing sewers	76.00	
June 12, 1888	Balance due for re-laying water main on Lafayette avenue, caused by change of grade	110.00	
June 12, 1888	Expense raising water main on Earl, near Beech, caused by change of grade	118.50	
November 9, 1889	Water for flushing sewers, etc	155.50	
			$35,240.23
Balance frontage tax assessment for 1884, 1885, 1886, 1887		$2,603.32	
Balance frontage tax assessment for 1888		3,473.09	
Balance frontage tax assessment for 1889		76,706.21	
			82,782.62
From builders		$500.00	
From street sprinkling contractors		2,129.40	
From service connections		3,500.00	
			6,129.40
Total			$124,152.25

LIST OF VOUCHERS PAID FROM DECEMBER 1, 1888, TO DECEMBER 1, 1889.

DECEMBER, 1888.

No. of Vo'cher	Name.	Claim.	Amount.
3402	John Caulfield, Secretary, St. Paul	Pay roll for November	$ 5,190.27
3403	National Meter Co., New York	Meters	111.00
3404	Jonathan Warden, St. Louis	Inspecting pipe	3.00
3405	McArthur Bros., St. Paul	Estimate No. 7, reservoir	20,235.33
3406	McArthur Bros., "	Extra work at reservoir	17.48
3407	Joseph Bulena, "	Blacksmithing	4.15
3408	P. N. Lindquist, "	Horseshoeing	5.25
3409	K. P. Cullen, "	Teams to reservoir opening	77.00
3410	Donaldson, Ogden & Co., St. Paul	Lantern fixtures	1.57
3411	H. P. Rugg, St. Paul	Lead, iron pipes and fixtures	63.47
3412	Farwell, Ozmun, Kirk & Co., St. Paul	Tools	5.53
3413	P. H. Kelly Mer. Co., St. Paul	Powder fuse and oil	37.56
3414	P. Kelly, St. Paul	Sharpening tools October and Nov.	37.45
3415	Sherwood, Sutherland & Co., St. Paul	68 feet piling	6.12
3416	Griggs Bros., St. Paul	19,540 pounds hay	68.39
3417	J. P. Gribben, "	Lumber	1.50
3418	J. G. Duggan & Bro., St. Paul	Sharpening tools	63.70
3419	H. P. Rugg & Co., "	Lead pipe	95,37
3420	Boeringer & Sons, "	Repairing tape, etc	1.25
3421	Adam Decker & Co., "	Tools	1.90
3422	John Dowlan & Sons, "	Wood and coal	45.92
3423	Robert Seeger, "	Gasoline	3.00
3424	St. Paul Foundry Co., "	Manhole covers, etc	120.78
3425	St. Paul Brass Works, "	Brass goods, block tin, etc	199.06
3426	John Martin Lumber Co., St. Paul	Lumber	2.94
3427	Chas. Friend & Son, St. Paul	Harness fixtures and repairs	13.40
3428	Rodgers & Ordway, "	Pipe fittings	21.73
3429	Brown, Treacy & Co., "	Printing and stationery	38.05
3430	Robinson & Cary, "	Tools and packing	14.58
3431	Richard Price, "	Veterinary services	2.50
3432	Ed. McNamee, "	Feed	27.71
3433	Stephen J. Harper, "	Estimate No. 1, grading over conduit	528.00
3434	J. C. Hanley Line Co., "	Sewer and pipe	12.80
3435	T. W. Ingersoll, "	Photo and frame reservoir	4.25
3436	S. J. Harper, "	Est. No. 2, excavating over conduit	252.00
3437	John Bell, "	Cement	21.00
3438	H. P. Rugg & Co., "	Lead pipe	105.06
3439	Jno. J. Watson, Bro. & Hyndman, St. Paul	Insurance on stable	15.00
	Total		$27,455.07

LIST OF VOUCHERS—*Continued.*

JANUARY, 1889.

No.	Name.	Claim.	Amount.
3440	John Caulfield, Secretary, St. Paul	Pay roll for December, 1888	$3,795.84
3441	Geo. Reis, City Treasurer, "	Interest due Dec. 1, 1888	7,017.50
3442	Geo. Reis, City Treasurer, "	Interest due Jan. 10, 1889	6,416.00
3443	National Meter Co., New York	Meters	27.50
3444	Vacuum Oil Co., Chicago	1 barrel oil	33.15
3445	Stockton & Lindquist, St. Paul	Sewer connection to barn	241.00
3446	Scribner-Libby Co., "	Changing gutter on shop	9.00
3447	P. F. Fitzgibbon, "	1 door sign	1.75
3448	Finch, Van Slyck & Co., "	New cord for window shades	1.50
3449	St. Paul Brass Works, "	Brass goods and repairs	44.36
3450	Thos. Brennan, "	Lumber	3.13
3451	P. N. Lindquist, "	Horse shoeing	10.50
3452	John Bell, "	Cement	28.50
3453	J. C. Hanley Lime Co., "	Sewer pipe	16.40
3454	John Martin Lumber Co., "	Lumber	26.25
3455	The A. D. Smith Co., "	Turning Derrick poles	12.00
3456	The Globe Oil Co., "	Oil for pump house	22.05
3457	W. E. Magraw, "	Daily Globe to Feb. 1	2.55
3458	E. McNamee, "	Feed	13.36
3459	H. P. Rugg & Co., "	Pipe fittings	2.13
3460	Dispatch Printing Co., "	Advertising	1.50
3461	Larkin & Smith, "	2 doz. tub. globes	1.40
3462	St. Paul Book & Stationery Co., St. Paul	1 blank book	2.50
3463	James S. Burris, St. Paul	Sewer brick	80.00
3464	John Dowlan & Sons, St. Paul	Coal and wood	37.92
3465	Pioneer Press Co., "	Daily to Jan. 1, 1889	4.00
3466	Geo. J. Mitsch & Co., "	Supplies	2.78
3467	S. R. McMasters, "	Damages	43.35
3468	John Caulfield, Secretary, "	Bills paid and attached	61.69
3469	J. G. Duggan & Bro., "	Blacksmithing	72.50
3470	P. H. Kelly Merc. Co., "	Oil, Nails, etc	51.15
3471	John Melrose, "	Blasting timbers	65.00
3472	Brown, Treacy & Co., "	Printing	52.00
3473	Henry E. Wedelstaedt, "	Stationery	27.10
3474	St. Paul Foundry Co., "	Manhole castings	45.00
3475	McArthur Bros. for Peter Berkey, St. Paul	Estimate No. 8, reservoir	24,248.25
3476	Geo. Reis, City Treasurer, St. Paul	Water Company's bonds due	160,000.00
	Total		$202,520.61

LIST OF VOUCHERS—*Continued.*

FEBRUARY, 1889.

No.	Name.	Claim.	Amount.
3477	John Caulfield, Secretary, St. Paul	Pay roll for January	$3,764.07
3478	National Meter Co., New York	Meters	231.25
3479	Dispatch Printing Co., St. Paul	Printing and advertising	6.35
3480	Die Volkzeitung, "	Advertising	1.80
3481	Miles & Hale, "	Repairing vault doors	21.75
3482	John Bell & Son, "	Cement	27.00
3483	Farwell, Ozmun, Kirk & Co., "	Tools	3.53
3484	P. H. Kelly Mer. Co., "	Powder, fuse and oil	35.71
3485	C. A. Wallingford, "	Plans of dwelling reservoir	50.00
3486	The A. D. Smith Co., "	1 map roller	3.00
3487	P. N. Lindquist, "	Horse shoeing	9.25
3488	Robt. Seeger, "	Gasoline	3.00
3489	Pioneer Press Co., "	Blank books	13.20
3490	Taylor, Craig & Co., "	Fixing floor	3.75
3491	Henry E. Wedelstaedt, "	Tracing cloth	6.25
3492	John Dowlan, "	Fuel	50.92
3493	E. McNamee, "	Feed	23.08
3494	Fred Beil, "	Sharpening tools	15.10
3495	John Martin Lumber Co., "	Lumber	6.72
3496	Donaldson, Ogden & Co., "	Lantern fixtures	.50
3497	J. G. Duggan & Bro., "	Blacksmithing	57.25
3498	H. P. Rugg & Co., "	Pipe and fittings	24.93
3499	Larkin & Smith, "	Lantern globes	1.40
3500	Geo. Reis, City Treasurer, "	Interest due Feb. 1, 1889	3,759.35
3501	Brown, Treacy & Co., "	Stationery and Printing	44.30
3502	Northwestern Fuel Co., "	Coal	40.80
3503	Nicols & Dean, "	Machine bolts	.54
3504	St. Paul Brass Works, "	Block tin and brass goods	34.74
3505	Rogers & Ordway, "	Pipe fittings	15.11
3506	Robinson & Cary, "	Tools, etc	5.89
3507	Thomas Brennan, "	Lumber	.36
	Total		$8,260.90

LIST OF VOUCHERS—*Continued.*

MARCH, 1889.

No.	Name.	Claim.	Amount.
3508	John Caulfield, Secretary, St. Paul	Pay roll for February	$3,771.60
3509	Geo. Reis, City Treasurer, "	Interest due Nov. 1, 1889	6,758.45
3510	R. D. Wood & Co., Philadelphia	Estimate No. 1, hydrants	2,170.00
3511	The Engineering Building Record, N. Y.	Advertising water pipe	37.20
3512	H. Mueller Manufacturing Co., Decatur.	Drills and taps	58.85
3513	Pioneer Press Co., St. Paul	1 Portfolio	3.75
3514	Robt. Seeger, "	Gasoline	.75
3515	D. L. Curtice, "	1 street guide map	4.00
3516	Northwestern Fuel Co. "	Coal	47.70
3517	John Dowlan & Sons, "	Fuel	81.42
3518	Rogers & Ordway, "	Pipe fittings	1.43
3519	Chas. Friend & Son, "	Harness fittings	4.45
3520	J. C. Hanley Lime Co. "	Sewer pipe	6.00
3521	H. P. Rugg & Co., "	Steam fittings	34.87
3522	P. N. Lindquist, "	Horse shoeing	3.00
3523	E. McNamee, "	Feed	11.20
3524	Farwell, Ozmun, Kirk & Co., St. Paul	Tackle blocks	2.22
3525	Geo. J. Mitsch & Co., St. Paul	Supplies	2.00
3526	Geo. J. Exley, "	Estimate No. 1, cravage	376.16
3527	H. E. Wedelstaedt & Co. "	Triangles	1.20
3528	John Caulfield Secretary, St. Paul	Bills paid	73.52
3529	F. W. Luley & Son, "	Meats and provisions	1.00
3530	John Witte, "	Sharpening tools	40.08
3531	P. H. Kelly Mercantile Co., "	Powder, fuse and nails.	91.60
3532	Brown, Treacy & Co., "	Stationery and printing	51.35
3533	Bohn Mf'g Co., "	Lumber	3.45
3534	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 1, pipe and specials	45,406.06
3535	A. W. Morgan Mf'g Co., Buffalo, N. Y.	Estimate No. 1, stop and valve boxes	3,693.00
	Total		$62,736.31

LIST OF VOUCHERS—*Continued.*

APRIL, 1889.

No.	Name.	Claim.	Amount.
3536	John Caulfield, Secretary, St. Paul	Pay roll for March	$ 4,809.49
3537	Geo. Reis, City Treasurer, "	Interest due April 1, 1889	25,062.50
3538	R. D. Wood & Co., Philadelphia	Estimate No. 2, hydrants	2,116.00
3539	Hersey Meter Co., South Boston	Meters	152.75
3540	The Engineering & Building Record, N.Y.	1 year's subscription to March 31, 1890.	4.00
3541	Galvin Valve and Hydrant Co., Detroit.	Estimate No. 1, brass goods	336.00
3542	Galvin Valve and Hydrant Co., "	Estimate No. 1, valves	1,557.50
3543	W. H. Lehman, Chicago	Grate castings	6.10
3544	American Supply Co. Reading, Pa	Packing	112.36
3545	The Dispatch Printing Co., St. Paul	Advertising proposals	2.25
3546	W. E. Magraw, St. Paul	Daily Globe, 3 months, to May 1	2.55
3547	Northwestern Shot Co., St. Paul	Pig lead	76.05
3548	John Dowlan & Sons, "	Coal	65.50
3549	E. McNamee, St. Paul	Feed	9.78
3550	Geo. J. Exley, "	Estimate No. 2, drayage	363.03
3551	Geo. Reis, City Treasurer, St. Paul	Street sprinkling	11.10
3552	Robert Seeger, St. Paul	Gasoline	.75
3553	P. H. Kelly Mercantile Co., St. Paul	Powder, fuse and oil	116.53
3554	Goodyear Rubber Co., St. Paul	12 pair clasps	5.99
3555	P. N. Lindquist, St. Paul	Horseshoeing	5.00
3556	Farwell, Ozmun, Kirk & Co., St. Paul	Tools	40.47
3557	Jos. Bulena, St. Paul	Sharpening tools	3.70
3558	H. P. Rugg & Co., St. Paul	Lead pipes, valves, etc	261 59
3559	Shickle Harrison & Howard Iron Co., St. Louis	Estimate No. 2, pipe and specials	6,830.26
3560	Northwestern Star Oil Co., Minneapolis.	Half barrel boiler compound	14.00
3561	James B. Clow & Son, Chicago	One Spocton meter	12.75
3562	P. J. Duggan, St. Paul	Sharpening tools	82.85
3563	St. Paul Brass Works, St. Paul	Block tin, brass goods, etc	161.70
3564	Geo. J. Mitsch & Co., "	Supplies	7.45
3565	C. W. Hackett Hardware Co., St. Paul	10 doz. shovels	75.00
3566	The A. D. Smith Co., St. Paul	Turning mauls	3.50
3567	Mahle & Sutmar, St. Paul	One new buggy and blacksmithing	184.00
3568	F. E. Duncan, for Rodgers & Ordway, St. Paul	Estimate No. 1, lead pipe	3,518.94
3569	John Witte, St. Paul	Blacksmithing	32.40
3570	Thos. Brennan, "	Lumber	24.70
3571	Robinson & Cary, St. Paul	Tools, etc	92.28
3572	Brown, Treacy & Co., St. Paul	Job printing and stationery	34.56
3573	Rodgers & Ordway, "	Pipe fittings	2.91
3574	Jno. B. Hawley, "	Surveying expenses	24.00
3575	Jno. Caulfield, Secretary, St. Paul	Bills paid	34.13
3576	J. C. Hanley Lime Co., "	Sewer pipe	9.60
3577	D. Ramaley & Son, "	400 annual reports	54.20
3578	Hodgman Bros., St Paul	Estimate No. 1, pig lead	3,551.99
3579	C. Allison, St. Paul	Estimate No. 1, dwelling at reservoir	512.00
3580	Henry J. Horn, St. Paul	Professional services	100.00
3581	Flandrau, Squires & Hutchson, St. Paul	Professional services	100.00
3582	Jas. J. Egan, St. Paul	Professional services	100.00
3583	M. Breen, "	244 granite monuments	427.00
	Total		$51,111.21

LIST OF VOUCHERS—*Continued.*

MAY, 1889.

No.	Name.	Claim.	Amount.
3584	John Caulfield, Secretary, St. Paul	Pay roll for April	$11,948.67
3585	George Reis, City Treasurer, "	Interest on bonds due May 1, 1889	4,505.62
3586	George J. Exley, for A. Delaney, "	Estimate No. 3, drayage	421.70
3587	J. I. Beaumont, "	Frontage tax 1889	600 00
3588	Jonathan Warden, St. Louis	Inspecting pipe	445.15
3589	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 3, pipe etc	29,090.39
3590	R. D. Wood & Co., Philadelphia	Estimate No. 3, hydrants	4,000.00
3591	Hersey Meter Co., South Boston	Meters	356.50
3592	Galvin Valve and Hydrant Co., Detroit	Estimate No. 2, valves	1,170.00
3593	Galvin Valve and Hydrant Co., Detroit	Estimate No. 2, brass goods	183.75
3594	National Meter Company, New York	Meters	333.00
3595	J. T. Le Duc, St. Paul	Balance on wagon	45.00
3596	The Dispatch Printing Co., St. Paul	Advertising proposals for coal	3.65
3597	The Globe Oil Co., "	300 gallons oil	25.50
3598	Standard Oil Co., "	1 tank for oil	17.00
3599	John Dowlan & Sons, "	Fuel	279.10
3600	Ed. McNamee, "	Feed	17.27
3601	F. G. Draper & Co., "	Tools	1.05
3602	George J. Mitsch & Co., "	Supplies	12.05
3603	Boeringer & Son., "	Repairing transit, etc	3.75
3604	Henry E. Wedelstaedt & Co., "	Stationery	3.65
3605	Richard Price, "	Veterinary services	2.50
3606	Jos. Bulena, "	Blacksmithing	30.50
3607	Goodyear Rubber Co., "	9 pair rubber boots	30.19
3608	P. J. Duggan, "	Blacksmithing	33.75
3609	Mahle & Sutmar, "	Blacksmithing	94.25
3610	Larkin & Smith, "	Lanterns and globes	34.15
3611	Nicols & Dean, "	Hammers and crowbars	2.85
3612	H. P. Rugg & Co., "	Valves, pipe, etc	114.04
3613	Robert Seeger, "	Gasoline	3.00
3614	Lockwood, Allard & Co., "	3 cords pine	10.50
3615	Martin Feist, "	Lunch for men cleaning conduit	5.00
3616	Board of Fire Commissioners "	378 feet of fire hose	81.60
3617	St. Paul Brass Works, "	Block tin and repairs	78.94
3618	P. N. Lindquist, "	Horseshoeing	6.50
3619	C. W. Hackett Hardware Co "	13 dozen shovels	97.50
3620	John Martin Lumber Co., "	Lumber	86.03
3621	Farwell, Ozmun, Kirk & Co., "	Tools	37.35
3622	Adam Decker & Co., "	Shovels, etc	119.65
3623	S. J. Harper, "	Estimate No. 3 and final	63.36
3624	J. Witt, "	Sharpening tools	8.15
3625	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	77.67
3626	Brown, Treacy & Co., "	Job printing	6.10
3627	C. Allison, "	Estimate No. 2, dwelling house	528.00
3628	Donaldson, Ogden & Co., "	Feather duster	.65
3629	St. Paul Foundry Co., "	Castings	81.65
3630	Robinson & Cary "	Galv. pipe and tools	77.07
3631	John Bell & Son, "	Cement	16.50
3632	Taylor Craig Corporation, "	Lumber, hydrant boxes	45.26
3633	R. D. Wood & Co., Philadelphia	Estimate No. 4, hydrants	1,440.00
3634	Galvin Valve and Hydrant Co., Detroit	Estimate No. 3, valves	1,479.00
3635	Minnesota Publishing Co., St. Paul	Job printing	97.53
3636	Thomas Brennan, "	Lumber	.83
3637	Rodgers & Ordway, "	Tools and pipe fittings	21.61
3638	B. W. Goodsell, Chicago	Rubber packing	31.69
	Total		$58,306.15

LIST OF VOUCHERS—*Continued.*

JUNE, 1889.

No.	Name.	Claim.	Amount.
3639	John Caulfield, Secretary, St. Paul	Pay roll for May, 1889	$17,026.15
3640	John Caulfield, Secretary, "	Frontage tax refunded	83.10
3641	John Caulfield, Secretary, "	Money advanced for freight, etc	74.26
3642	Ed. McNamee, St. Paul	Feed	16.35
3643	Geo. J. Mitsch & Co., St. Paul	Supplies	4.00
3644	Board of Fire Commissioners, St. Paul	Old hose	42.80
3645	John Melrose, St. Paul	2,460 pounds hay at $7.00 per ton	8.61
3646	John B. Hawley, St. Paul	Engineering expenses	23.55
3647	Schnell & Toensing, St. Paul	Fencing reservoir	49.50
3648	Jno P. Gribben Lumber Co., St. Paul	Posts for reservoir fence	70.00
3649	C. Allison, St. Paul	Estimate No. 3, dwelling at reservoir	560.00
3650	Geo. J Exley, St. Paul	Estimate No. 4, drayage	779.94
3651	Morgau & Wright, Chicago	Piston rod packing	16.50
3652	A. W. Morgan M'fg. Co., Buffalo	Estimate No. 2, stop and valve boxes.	1,633.50
3653	R. D. Wood & Co., Philadelphia	Estimate No. 5, hydrants	1,480.00
3654	Geo. Reis, City Treasurer, St. Paul	Interest due Jan. 1, 1889	7,017.50
3655	P. N. Lindquist, St. Paul	Horseshoeing	8.50
3656	The A. D. Smith Co., St. Paul	10 poles turned, etc	9.00
3657	Robert Seeger, St. Paul	Gasoline	3.00
3658	John Dowlan & Sons, St. Paul	Fuel	35.50
3659	E. M. Hallowell & Co., "	One Concord wagon	96.00
3660	St. Paul Rubber Co., "	Rubber boots	3.90
3661	Northwestern Shot Co., "	Estimate No. 1 and final, pig lead	4,529.81
3662	H. C. McNair, "	Estimate No. 1 and final, lead pipe	4,151.61
3663	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 4, iron pipe	45,937.99
3664	J. G. Duggan, St. Paul	Blacksmithing	64.20
3665	Jos. Bulena, "	Blacksmithing	27.50
3666	P. H. Kelly Mercantile Co., St. Paul	Powder, fuse and oil	88.60
3667	Galvin Valve and Hydrant Co., Detroit.	Estimate No. 4, valves	1,128.50
3668	Galvin Valve and Hydrant Co., "	Estimate No. 3, brass goods	180.00
3669	R. D. Wood & Co., Philadelphia	Estimate No. 6, hydrants	1,578.00
3670	Chapman Valve Mfg. Co., Boston	Valves	115.80
3671	C. Allison, St. Paul	Est. No. 4, final, dwelling at reservoir.	487.00
3672	C. Allison, "	Moving sheds on reservoir grounds	40.00
3673	Wm. Rodger & Co., St. Paul	Repairs at pump house	4.13
3674	Allen & Co., St. Paul	Use of horse and wagon	6.50
3675	Brown, Treacy & Co., St. Paul	Printing and stationery	19.20
3676	Portland Stone Co., "	12 Hexagon tile	2.40
3677	Farwell, Ozmun, Kirk & Co., St. Paul	Tools	34.47
3678	C. Collins & Son, St. Paul	Sharpening tools	15.50
3679	D. H. Ball, St. Paul	Sharpening tools	1.70
3680	Jas. Anderson, Merriam Park	Sharpening tools	9.56
3681	Nicols & Dean, St. Paul	Chain	15.54
3682	John Martin Lumber Co., St. Paul	Lumber	2.02
3683	Thos. Brennan, St. Paul	Lumber	3.21
3684	Goodyear Rubber Co., St. Paul	2 doz. 2½-inch clamps	5.99
3685	Lockwood, Allard & Co., Union Park	Two cords pine	7.00
3686	H. P. Rugg & Co., St. Paul	Packing iron pipes, fitting, etc	332.44
3687	John Bell & Son, "	Cement	172.40
3688	St. Paul Foundry Co., St. Paul	Iron castings	28.67
3689	Rodgers & Ordway, "	Hose pipe, fittings, etc	242.14
3690	Robinson & Cary, "	Pipe and engine supplies	65.71
3691	E. G. Krahmer & Co., "	Repairing broken plate glass, Seventh and Locust	69.04
3692	St. Paul Brass Works, "	Block tin and repairs	48.88
3693	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 5	12,319.17
	Total		$100,786.34

LIST OF VOUCHERS.—*Continued.*

JULY, 1889.

No.	Name.	Claim.	Amount.
3694	John Caulfield, Secretary, St. Paul	Pay roll for June, 1889	$16,281.36
3695	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 6, pipe and specials	10,044.78
3696	Jonathan Warden, St. Louis	Estimate No. 2, inspecting pipe	383.85
3697	Galvin Valve and Hydrant Co., Detroit	Estimate No. 4, brass goods	237.30
3698	" " "	Estimate No. 5, valves	28.00
3699	A. W. Morgan Mf'g Co., Buffalo	Estimate No. 3, valve boxes	913.75
3700	Jarvis B. Edson, 87 Liberty st., N. York	One year's chart for pumps	5.00
3701	James Alderson, Merriam Park	Blacksmithing	10.67
3702	Geo. Reis, City Treasurer, St. Paul	Interest due July 1, 1889	5,857.30
3703	Geo. J. Exley for A. Delaney, "	Estimate No. 5, drayage	634.00
3704	E. McNamee, "	Feed	16.62
3705	D. L. Curtice, "	City Maps	22.00
3706	R. Seeger, "	Gasoline	2.40
3707	Jos. Bulena, "	Blacksmithing	32.90
3708	C. Collins, "	"	21.85
3709	Die Volkszeitung, "	Advertising	5.55
3710	John Dowlan & Sons, "	Fuel	28.50
3711	W. E. Magraw, "	Daily Globe May 1 to Aug. 1, 1889	2.55
3712	Scribner-Libby Co., "	Two pans for tapping machine	3.50
3713	James Cullen, "	Replastering house	31.50
3714	H. P. Rugg & Co., "	Pipe packing, etc	193.73
3715	P. H. Kelly Merc. Co., "	Powder, fuse and oil	164.65
3716	Board of Fire Commissioners "	200 feet hose	40.00
3717	Pioneer Press Co., "	Job work advertising	19.00
3718	Allen & Co., "	Livery	4.00
3719	Gehan Bros., "	Insurance	18.00
3720	Nicols & Dean, "	Two stone hammers	1.05
3721	Pioneer Press Co., "	Daily, January to July	4.00
3722	J. C. Hanley Lime Co., "	Sewer pipe	5.60
3723	John Martin Lumber Co., "	Lumber	6.60
3724	Farwell, Ozmun, Kirk & Co., "	Tools	322.40
3725	John Bell & Son, "	Cement, fire clay, etc	7.50
3726	Jerome C. Cox, "	Work on cemetery lot acct reservoir	1,079.50
3727	J. G. Duggan, "	Blacksmithing	82.60
3728	Rodgers & Ordway, "	Pipe fittings	9.20
3729	P. N. Lindquist, "	Horse shoeing	7.50
3730	Brown, Treacy & Co., "	Job printing	46.90
3731	Vanderwarker & Acker, "	Estimate No. 1, coal	429.50
3732	Robinson & Cary, "	Tools, etc	10.57
3733	St. Paul Foundry Co., "	Castings	128.35
3734	D. Ramaley & Son, "	Job work	8.35
3735	The Dispatch Printing Co., "	Advertising bonds	29.25
3736	The Commercial and Financial Chronicle, N. P. Hooper, New York	"	37.50
3737	Wanderer Printing Co., St. Paul	"	15.00
3738	Die Volkszeitung, "	"	42.00
3739	The St. Paul Daily News, "	"	59.40
3740	The Globe Publishing Co., "	"	115.60
3741	Pioneer Press Co., "	"	160.00
	Total		$37,611.13

LIST OF VOUCHERS—*Continued.*

AUGUST, 1889.

No.	Name.	Claim.	Amount.
3742	John Caulfield, Secretary, St. Paul	Pay roll for July	$14,294.10
3743	Geo. Reis, City Treasurer, "	Interest on bonds due August 1, 1889	3,759.35
3744	George J. Exley, "	Estimate No. 6, drayage	139.35
3745	H. Mueller Mfg. Co., Decatur	Drill taps and plugs	8.65
3746	Henry R. Worthington, St. Paul	Meters	244.40
3747	The American Frost Meter Co., Boston	Frost meter	31.50
3748	The St. Paul Daily News, St. Paul	Advertising	5.50
3749	Jonathan Warden, St. Louis	Inspecting pipe	11.43
3750	John Rogers, Jr. & Bro., St. Paul	Insurance	20.00
3751	Prince & Shandrew, "	Insurance	30.00
3752	Pioneer Press Co., "	Advertising	2.00
3753	Warren-Scharf Asphalt Paving Co., New York	Relaying pavement	103.06
3754	L. J. Templeton & Co., St. Paul	Baled hay	16.08
3755	Craig, Larkin & Smith, "	Lamp wicks	.45
3756	John Dowlan & Son, "	Fuel	21.00
3757	St. Paul Brass Works, "	Brass goods and repairs	72.25
3758	Joseph Bulena, "	Sharpening tools	30.15
3759	E. McNamee, "	Feed	16.61
3760	Farwell, Ozmun, Kirk & Co., St. Paul	Tools	13.55
3761	F. W. Luley & Son, "	Tallow	1.00
3762	R. Seeger, "	Gasoline	1.80
3763	Adam Decker, "	Tools	1.20
3764	Charles Friend & Son, "	Harness fittings and repairing	9.75
3765	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	83.89
3766	Rodgers & Ordway, "	Pipe fittings	5.16
3767	J. G. Duggan, "	Blacksmithing	80.45
3768	St. Paul Stone Co., "	Tiles	1.50
3769	H. P. Rugg & Co., "	Pipe valves, etc	163.84
3770	John Caulfield, Secretary, "	Advances on account erroneous frontage tax	41.30
3771	John Caulfield, Secretary, "	Freight, etc., paid	62.74
3772	K. P. Cullen, "	Team	6.00
3773	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 6, pipe	2,002.85
3774	Galvin Valve and Hydrant Co., Detroit	Estimate No. 6, valves	160.50
3775	Galvin Valve and Hydrant Co., "	Estimate No. 5, brass goods	150.00
3776	Vanderwarker & Acker, St. Paul	Estimate No. 2, coal	986.40
3777	St. Paul Foundry Co., "	Cast plugs	37.80
3778	Goodyear Rubber Co., "	Clamps	6.74
3779	P. N. Lindquist, "	Horseshoeing	8.00
3780	St. Paul Dispatch Co., "	Advertising	13.85
3781	J. B. Hawley, "	Surveying expenses	12.00
3782	S. A. Thompson, "	Board and team for engineers	4.50
3783	Brown, Treacy & Co., "	Printing and stationery	14.40
3784	M. Manning for J. Jackson, St. Paul	162 feet hose	40.50
3785	James Alderson, Merriam Park	Sharpening tools	5.95
3786	Taylor Craig Corporation, St. Paul	Carpenter work and locks	38.00
3787	Die Volkszeitung, "	Advertising	1.50
3788	Miles & Hale, "	Repair electric battery pump house	10.50
3789	Lockwood, Allard & Co., Merriam Park	Wood	7.00
3790	Galvin Valve and Hydrant Co., Detroit	Estimate No. 7, valves	428.00
3791	A. W. Morgan Mfg. Co., Buffalo	Estimate No. 4, valve boxes	230.00
3792	Galvin Valve and Hydrant Co., Detroit	Estimate No. 6, brass goods	117.00
3793	B. C. Baldwin, St. Paul	Certified plat	2.50
3794	G. W. Gilpatrick for John Caulfield, Anoka	Abstract title	20.00
3795	James H. Helson, St. Paul	"Right of way," Anoka county	2,500.00
3796	M. R. Murnane, Abstract Clerk, St. Paul	Abstract township 30, range 23	34.45
3797	Vanderwarker & Acker, "	Estimate No. 3, coal	1,260.34
	Total		$27,376.84

LIST OF VOUCHERS—*Continued.*

SEPTEMBER, 1889.

No.	Name.	Claim.	Amount.
3798	Jno. Caulfield, Secretary, St. Paul	Pay roll for August	$14,163.55
3799	Geo. Reis, City Treasurer, "	Interest on Bonds	6,758.45
3800	Geo. Reis, City Treasurer, "	Assessment paving E. 7th	416.00
3801	The City of St. Paul, "	Relaying pavement, April, May, June and July	1,392.22
3802	Henry R. Worthington, "	Meters	147.00
3803	J. H. Schurmeier Wagon Co., St. Paul	Repair pipe wagon	10.00
3804	L. J. Templeton & Co., "	Hay	17.03
3805	Miles & Hale, "	Two relays and fittings	11.20
3806	DeCou & Co., "	Wire netting for screens	5.88
3807	Jno. Dowlan & Sons, "	Wood	42.50
3808	Geo. J. Mitsch & Co., "	Supplies	4.20
3809	E. McNamee, "	Feed	17.06
3810	D. Ramaley & Son, "	Printing specifications, etc	47.20
3811	J. W. Cunningham & Co., "	Job printing	7.00
3812	Quinby & Abbott, "	Office stool	5.50
3813	Martin Feist, "	Lunch for men cleaning conduit	5.00
3814	Robert Seeger, "	Gasoline	3.00
3815	H. P. Rugg & Co., "	Pipe fitting	283.81
3816	C. Collins, "	Sharpening tools	37.60
3817	J. G. Duggan, "	" "	86.00
3818	Larkin & Smith, "	Red lanterns	11.25
3819	St. Paul Rubber Co., "	Rubber boots and packing	31.62
3820	St. Paul Brass Works, "	Tin and repairs	75.96
3821	K. P. Cullen, "	Teaming	15.00
3822	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	79.52
3823	Brown, Treacy & Co., "	Job printing and stationery	30.45
3824	Farwell, Ozmun, Kirk & Co., "	Tools, etc	28.45
3825	John Martin Lumber Co., "	Lumber	35.20
3826	The Northwestern Telephone Exchange Co., St. Paul	Reb'l'd'g line Acker st. to Vadnais Lake	364.92
3827	Brennan Lumber Co., St Paul	Lumber	3.84
3828	Prendergast Bros., "	Four oil cans	1.15
3829	St. Paul Foundry Co., "	Cast plugs	14.55
3830	Owen Duncanson, "	Sharpening tools	5.30
3831	P. M. Lindquist, "	Horse shoeing	8.00
3832	Goodyear Rubber Co., "	Hose Clamps	5.24
3833	Jos. Bulena, "	Sharpening tools	5.10
3834	Jno. Englund, "	Damages	4.95
3835	J. P. Gribben Lumber Co., St. Paul	Lumber	26.88
3836	Kenney Bros., "	25 pounds boiler iron	1.25
3837	Jas. Alderson, Merriam Park	Sharpening and repairing tools	5.03
3838	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 8, pipe and specials	123.10
3839	Robinson & Cary, St. Paul	Pipe and fittings	242.97
3840	Henry Wedelstaedt, St. Paul	Stationery for engineers	2.95
3841	Boeringer & Son, "	Engineers' instruments	2.71
3842	Jno. Caulfield, Secretary, St. Paul	Advances for receipts attached	69.71
3843	Jno. Caulfield, " "	Frontage tax refunded	5.50
3844	Henry Bucher, "	Labor and board for engineers	9.75
3845	D. E. Talbot, "	Whitewashing engine house	12.75
3846	Charles Helson, Anoka	Strip 100 ft. wide, 34.4 acres SW¼ SE¼ Sec. 31, T. 31, R. 22	800.00
	Total		$25,483.30

LIST OF VOUCHERS—*Continued.*

OCTOBER, 1889.

No.	Name.	Claim.	Amount.
3847	John Caulfield, Secretary, St. Paul	Pay roll for September	$11,278.49
3848	Geo. Reis, City Treasurer, "	Interest due Oct. 1, 1889	25,062.50
3849	The Globe Publishing Co., "	Advertising	119.82
3850	Northwestern Lead Pipe Co., "	Lead pipe	411.85
3851	W. E. Magraw, "	Daily Globe 3 months	2.55
3852	Brown, Treacy & Co., "	Stationery	5.15
3853	Independent Oil Co., "	½ barrel axle grease	10.55
3854	D. Ramaley & Son, "	Printing brief	7.00
3855	Farwell, Ozmun, Kirk & Co., "	Tools	2.40
3856	John Dowlan & Sons, "	Wood	28.50
3857	Robert Seeger, "	Gasoline	2.40
3858	E. McNamee, "	Feed	15.08
3859	Griggs Bros., "	Hay	67.27
3860	Lindekes, Warner & Schurmeler, St. Paul	Blankets	19.25
3861	H. P. Rugg & Co., "	Pipes and fittings	246.43
3862	Shickle, Harrison & Howard Iron Co., St. Louis	Est. No. 9, pipe, etc	4,820.05
3863	Rodgers & Ordway, St. Paul	Pipe fittings	2.65
3864	P. H. Kelly Merc. Co., "	Powder, fuse and oil	58.53
3865	C. Collins, "	Blacksmithing	16.70
3866	A. C. Merryman, "	Surveying	34.30
3867	Vanderwarker & Acker, "	Coal	33.50
3868	Lockwood, Allard & Co., Union Park	Pine slabs	14.00
3869	T. M. Dill, St. Paul	Copying papers	5.00
3870	Henry R. Worthington, St. Paul	Meters	127.50
3871	City of St. Paul	Relaying pavement	91.55
3872	Jalvin Valve & Hydrant Co., Detroit	Estimate No. 8, valves	64.20
3873	Nicols & Dean, St. Paul	Iron	.72
3874	Brennan Lumber Co., St. Paul	Lumber	1.30
3875	St. Paul Rubber Co., "	Rubber boots and packing	32.74
3876	P. N. Lindquist, "	Horse shoeing	8.00
3877	Jos. Bulena, "	Sharpening tools	7.85
3878	St. Paul Brass Works, "	Pig tin, brass goods, etc	75.04
3879	Jas. Alderson, Merriam Park	Sharpening tools	5.42
3880	Scribner-Libby Co., St. Paul	Machine work	2.88
3881	A. W. Morgan Mf'g Co., Buffalo	Est. No. 5, valve boxes	500.00
3882	J. G. Duggan, St. Paul	Blacksmithing	34.35
3883	Goodyear Rubber Co., St. Paul	Rubber goods	31.50
3884	Taylor-Craig Corporation, St. Paul	Machine work	11.80
3885	J. P. Flandrake, "	Well at gate house, Vadnais lake	25.00
3886	Robinson & Cary, "	Pipes and fittings	51.19
3887	McArthur Bros., "	Est. No. 1. Baldwin Lake	4,440.00
3888	John Martin Lumber Co., "	Lumber	89.25
3889	Marie A. Hornsby, "	Lots in Union Park	2,100.00
3890	Henry S. Fairchild, "	Land for right of way	354.00
3891	Henry Bucher, Jr., "	Right of way	1,000.00
	Total		$51,318.26

LIST OF VOUCHERS—*Concluded.*

NOVEMBER, 1889.

No.	Name.	Claim.	Amount.
1889			
3892	John Caulfield, Secretary, St. Paul	Pay roll	$11,231.19
3893	Diebold Safe and Lock Co., "	Burglar proof safe	375.00
3894	James Gilfillan, "	Rent of lot	50.00
3895	George Reis, City Treasurer, "	Interest due November 1, 1889	6,758.45
3896	The City of St. Paul, "	Re-laying pavement	153.14
3897	Shickle, Harrison & Howard Iron Co., St. Louis	Estimate No. 10, iron pipe	3,828.51
3898	Jonathan Warden, St. Louis	Inspecting pipe	48.53
3899	Henry Bucher, St. Paul	Labor and team	12.50
3900	Prendergast Brothers, St. Paul	Cleaning furnace	2.50
3901	K. P. Cullen, "	Team to Baldwin Lake	18.00
2902	George Mitsch, "	Sharpening tools	8.20
3903	J. S. Burris, "	8 thousand sewer brick	52.00
3904	Northwestern Shot and Lead Co., St. Paul	Pig Lead and pipe	288.62
3905	Pioneer Press Company, St. Paul	Blank books	72.40
390	Taylor-Craig Corporation, "	Work on Pleasant Lake flume	49.20
3907	Henry R. Worthington, "	Meters	179.18
3908	Northwestern Star Oil Co., Minneapolis	½ bbl. boiler compound	12.25
3909	George J. Exley, St. Paul	Estimate No. 7 and final, drayage	418.07
3910	The Dean Steam Pump Co., Holyoke, Mass	Estimate No. 1, pumps	2,000.00
3911	M. A. and S. C. Clow, St. Paul	Hersey Meters	57.75
3912	S. A. Thompson, "	Grading at Pleasant Lake	49.50
3913	Henry Bucher, "	Dredging boats at Rice Lake	15.00
3914	John Dowlan & Sons, "	Fuel	21.00
3915	Brown, Treacy & Co., "	Stationery	22.40
3916	K. P. Cullen, "	Livery	32.00
3917	St. Paul Book and Stationery Company, St. Paul	Time books	4.35
3918	Goodyear Rubber Co., St. Paul	Rubber packing	3.22
3919	E. M. Hallowell & Co., "	Rubbers on buggy	.50
3920	Adam Decker & Co., "	Nails	.50
3921	Vanderwarker & Acker, "	Coal	448.19
3922	Charles Friend & Son, "	Leather fittings	4.40
3923	E. McNamee, "	Feed	16.08
3924	Brennan Lumber Co., "	Lumber	7.68
3925	Farwell, Ozmun, Kirk & Co., "	Nails and tools	19.38
3926	George Mitsch & Co., "	Supplies	14.50
3927	John Melrose, "	Blasting timbers	15.00
3928	H. P. Rugg & Co., "	Pipe and fittings	45.94
3929	Robert Seeger, "	Gasoline	3.00
3930	J. G. Duggan, "	Blacksmithing	40.40
3931	C. Collins, "	Blacksmithing	39.10
3932	H. D. Ball, "	Blacksmithing	7.75
3933	P. M. Lindquist, "	Horseshoeing	8.00
3934	John Martin Lumber Co., "	Lumber	10.05
3935	P. H. Kelly Mercantile Co., "	Powder, fuse and oil	126.39
3936	Northwestern Shot and Lead Company, St. Paul	Lead pipe	937.99
3937	Richard Price, St. Paul	Veterinary services	5.50
3938	M. Breen, "	Foundation stone pumps	50.00
3939	Jos. Bulena, "	Blacksmithing	7.15
3940	John Bell & Son, "	Cement	10.90
3941	St. Paul Foundry Co., "	Special castings	110.10
3942	St. Paul Brass Works, "	Brass goods and repairs	42.97
3943	John Caulfield, Secretary, "	Cash advanced to pay bills	78.55
3944	Allen & Co.' "	Livery for October	12.00
3945	A. W. Morgan Maufacturing Co., Buffalo	Estimate No. 6, stop and valve boxes	330.00
3946	R. D. Wood & Co., Philadelphia	Estimate No. 7, hydrants	330.95
3947	James Alderson, Merriam Park	Sharpening tools	5.96
3948	St. Paul, Minneapolis & Manitoba Railway, St. Paul	Labor, Lafayette avenue main	8.25
3949	Northwestern Shot and Lead Co., St. Paul	Lead pipe	94.14
3950	J. D. Estabrook, "	Surveying expenses	116.46
3951	McArthur Bros., "	Estimate No. 2, canal and pump house	9,681.94
	Total		$38,392.68
	Grand total		$691,358.80

METERS.

Kind of Meter.	Sizes.								Total.
	½	⅝	¾	1	1½	2	3	4	
Worthington	.....	11	25	20	15	4	3	2	80
Union (rotary)	.....	16	11	10	7	.....	.....	.....	44
Union (piston)	.....	6	7	5	1	.....	.....	.....	19
Crown	.....	6	4	13	28	4	1	.....	56
Empire	.....	39	41	30	.....	8	.....	1	119
Hersey	.....	7	17	5	3	2	.....	.....	34
Thompson	.....	.....	.....	.....	.....	.....	.....	.....	.....
Frost	.....	.....	.....	.....	.....	.....	.....	.....	.....
Self-registers, on elevators and church organ	.....	.....	.....	.....	.....	1	.....	1	2
Total	.....	85	105	83	54	19	4	4	354

SHUTTING OFF AND TURNING ON WATER FROM DEC. 1, 1888, TO DEC. 1889.

	High Service.	Low Service.	Total.
Shut off for repairs	124	253	377
" " non-payment	100	194	294
" " vacant premises	219	332	551
" " violation of rules	.....	5	5
Total	443	784	1227
Turned on, old services	350	660	1,010
" " new services	1,165	476	1,641
" " for builders	.....	100	100
Total	1,515	1,236	2,751

Total services shut off and turned on for year ending December 1, 1889 3,978
" " " " " " " 1, 1888 2,833
" " " " " " " 1, 1887 2,541
" " " " " " " 1, 1886 2,384
" " " " " " " 1, 1885 2,311
" " " " " " " 1, 1884 1,014

SUPERINTENDENT'S REPORT.

ST. PAUL, Dec. 1, 1889.

To the Honorable President and Members of the Board of Water Commissioners:

GENTLEMEN: I have the privilege of submitting to your honorable body my eighth annual report, and in doing so I have endeavored to show you the present condition of the works, as well as my recommendations for the future:

The relaying of Third street, from Jackson to Seven Corners, the six-inch pipe with twelve-inch, mentioned in my last report, was completed early in the season, also Seventh street from Jackson to Locust and Locust from Seventh to Eighth, in advance of construction of cable line. There have been nine leaks in mains this year, two caused by settling in sewer excavation; three in joints, one by pipe being split in drayage, three in cement and iron pipe caused by rust. This, in 166 miles of pipe. I regard as a very small per cent, which shows the care and skill my foreman and caulkers exercise in laying mains. The Hamline extension was completed May 22d. They proved very poor water takers. Only seventeen consumers have taken out permits, seven of which were on buildings erected this year, after they presented a petition, with fifty-three signatures, for an extension of three and one-half miles of pipe. The St. Anthony extension was not completed until Nov. 8th, and we have some forty consumers on five miles of pipe. The Macalester extension was all abandoned except Snelling avenue and a small piece on Summit and the pipe laid elsewhere. They agreed to sewer the park, which was not done, and it is very difficult to build and operate water works where the water stands within a foot of the surface. The water would stand in the hydrants on a level with the water in the soil, and would freeze and destroy the hydrants. The Warrendale and Workhouse extension was completed in October, after a large deduction of mileage.

The following is a statement of the extension made during the season:

LOW SERVICE.

	Feet.
4-inch pipe	1,648
6-inch pipe	23,956
12-inch pipe	8,869
16-inch pipe	3,215
20-inch pipe	248

Making a total of 7 miles, 970 feet.

HIGH SERVICE.

	Feet.
4-inch pipe	9,013
6-inch pipe	89,099
12-inch pipe	16,660
16-inch pipe	30,241
20-inch pipe	4,589
24-inch pipe	2,235

Making a total of 28 miles, 3,993 feet.

Total mileage of pipe laid in St. Paul during the season on high and low service, 35 miles, 4,963 feet.

Grand total of city mains, 166 miles, 2,487 feet.

Our fire hydrants are now all in good repair. There were thirty-six leaks in main valves on hydrants caused mostly by sand and gravel on new extensions. There were several in the elbow of hydrants caused by defective moulding. The account was charged to the manufacturers and paid by them. Seven leaked in seat packing and some other minor repairing. There were 337 hydrants set this season, making a total of 1,471 now in service. We have 186 street sprinkling hydrants, 24 of which were set this season.

The Galvin valve used this year has not given the satisfaction we could have wished. A number of them leaked and some worked hard. There were 280 valves set this season, making a total of 1,479 valves on high and low service.

There has been 1,818 applications for service pipe made this year, which is within a fraction of 50 per cent increase over any previous year, thus showing the rapid growth of the city, and making a total of 9,052 consumers on high and low service. There have been sixty-one leaks in service pipes and stops this season, eight of which were caused by settling of sewer excavation on account of the gross carelessness on the part of the contractors. Thirty-seven were caused by general wear and tear, and sixteen in defective brass goads, most of which were furnished us in 1887. There were a number detected this year before being laid. This class of goods may be easily doctored with soap or beeswax and made to stand a test of 300 pounds pressure, but give out in a year. When an article costs from 40 to 50 cents, and costs from $5.00 to $20.00 to repair them, only the best should be used. I would advise the buying of our brass goods in the rough by the pound and finish them in the winter with the skilled labor that lays our pipe in summer. It would probably cost a little more but would be saved in the item of repair. It will be necessary to grade the low service right-of-way, so that it will be thoroughly settled to lay a high service main in 1891, thus avoiding the expense of piling. I regard a low service reservoir an absolute necessity.

It will be necessary to let contracts for house and shop at Union Park on lots owned by the city and controlled by the Board, early in the winter, so as to have them completed at the commencement of another season's work, as it is impossible to operate, with economy, our mechanical department six miles

from base of operations. The waste of water here, as in other cities, increases with the growth of the city. I believe meters are the only remedy to prevent waste. I would recommend meters to be put on all service pipes larger than ⅝-inch and on all portable or permanent fountains. There has been quite an improvement in the quality of meters in the last year or two.

In conclusion, I return thanks to the president and members of the board and Mr. John Caulfield, secretary, for their uniform courtesy and kindness to me. I have the honor to remain, gentlemen,

Respectfully yours,

J. B. OVERTON,

Superintendent St. Paul Water Works.

ESTIMATE OF AMOUNT AND COST OF PIPE RECOMMENDED TO BE LAID TO DECEMBER 1, 1890, ON HIGH AND LOW SERVICE.

21 and 170/5280 miles pipe—2,851 tons, at $26.50	$75,551.50
100 tons special castings at $55.00	5,500.00
Gates and gate boxes	6,217.50
200 fire hydrants at $47.00	9,400.00
Lead, 65 tons at $80.00	5,200.00
Three tons of hemp packing at $125.00	375.00
Excavation in laying	34,425.50
Extra for rock excavation	5,000.00
Drayage of pipe and miscellaneous, 5,000 tons, at 55c	2,750.00
Total	$144,419.50

PIPE RECOMMENDED TO BE LAID ON LOW SERVICE DURING THE YEAR 1890.

Street.	From street to street.	No. of feet and size of pipe.			
		4-in.	6-in.	12-in.	16-in.
Watson	View to Chatsworth		2,150		
View	Randolph to Seventh		1,300		
Tuscorora	Seventh to Stewart avenue		1,200		
Stewart avenue	Tuscarora to Bay		950		
Bay	Stewart avenue to Seventh		1,200		
Warsaw	Seventh to Audobon		150		
Fifth	Broadway to John		800		
Hall	Isabel to Bluff		850		
Hall	Winnifred to George		600		
Congress	Dakota to Ohio		3,100		
Ohio	Isabel to Congress			350	
Winnifred	Stryker to Bellows		1,350		
Bidwell	Congress to Isabel		300		
Dearborn	Livingston to South Robert		325		
			14,275	350	

Total 6-inch pipe 14,275
Total 12-inch pipe 350

14,625 feet or 2 miles, 4065 feet

PIPE RECOMMENDED TO BE LAID ON HIGH SERVICE DURING THE YEAR 1890.

Street.	From Street to Street.	Number of feet and size of pipe.			
		4-in.	6-in.	12-in.	16-in.
	St. Anthony Hill—				
Charles	Mackubin to Western		1400		
VanBuren	Arundel to Victoria		4700		
St. Albans	St. Anthony to Martin	300			
St. Anthony	St. Albans to Victoria		2000		
Miller	Iglehart to Rondo	700			
Carroll	Milton to Chatsworth		500		
Laurel	Fisk to Oxford		2400		
Evergreen	Victoria to Oxford		2000		
St. Clair	Victoria to Oxford			1900	
St. Albans	Pleasant avenue to Fairmount			550	
Pleasant ave	Osceola to St. Albans			400	
Mulberry	Third to Sixth	425			
Virginia	Lafond to Como	1250			
	Midway District—				
Capitol	Snelling to Wheeler		2000		
Fairview	Auburn to St. Anthony				1625
Auburn	700 feet west of Fairview		700		
Bacon	Shields to University	600			
Wheeler	Shields to University		650		
St. Anthony	Laura to Snelling		2900		
Cleveland	University to Carroll				3300
	Rice Street District—				
Woodbridge	Atwater to Front		1300		
Milford	Rice to Woodbridge		700		
Gaultier	Milford to Cook		2000		
Stinson	Gaultier to Farrington		600		
Rice	Pennsylvania to Jessamine			1000	3600
Cook	Rice to Sylvan		1150		
Litchfield	Rice to Sylvan		1150		
Atwater	Rice to Sylvan		1150		
Sycamore	Rice to Courtland			2600	
Capitol	Sylvan to Courtland		1300		
Jackson	Pennsylvania to Sycamore			1100	
Courtland	Capital to Maryland		300		4550
Agate	Courtland to York		1800		
Arch	Jackson to Columbia		1850		
	Arlington Hills District—				
Rose	Arcade to Walsh		900		
Geranium	Arcade to Payne		2000		
Arcade	Jessamine to Rose			650	
Jessamine	Mississippi to Bradley		2700		
Jessamine	Weide to Greenbrier		1000		
Magnolia	Weide to Greenbrier		1800		
Whitall	Payne to Bradley		1400		
Westminster	Case to Lookout Place		400		
Lookout Place	Arkwright to Westminster		400		
Jessie	Case to Jessamine		1650		
	Dayton's Bluff District—				
Minnehaha	Duluth Railway to Arcade			1575	
Phalen	Seventh to Stillwater			1500	
Seventh	Ocean to Phalen				500
Atlantic	Seventh to Fauquier		700		
Reaney	Frank to English		2000		
Margaret	Earl to Gotzian		900		
Fremont	Cypress to Earl		600		
Earl	Beech to Dawson			600	
Earl	Hastings to Burns			1300	
Hastings	Maple to Frank			2400	
	To fill petitions for mains	5000	10000		
	Totals	8275	59000	15575	13575

PIPE LAID ON LOW SERVICE, SEASON 1889.

Date.		Street.	From Street to Street.	No. of feet and size of pipe.				
				4-in.	6-in.	12in.	16-in.	20-in.
April	2	Third	Seven Corners to 150 ft. east of Cedar			3209		
"	2	Washington	Crossing of Third			41		
"	4	Wabasha	Second to Third		102			
"	10	Bancroft	Concord to Congress		935			
"	10	Congress	At Bancroft		18			
"	16	Stryker	George to Prospect Terrace		2106			
"	23	Wacouta	Crossing Seventh street			64		
"	23	Seventh	Relaid from Jackson to Locust				2350	
"	26	Locust	7th to 8th, 16-in relaid with 20-in.					248
May	10	Indiana	Dakota to Ethel			2005		
"	11	Clinton	Congress to Winnifred		308			
"	13	Fourteenth	Broadway to Canada		335			
"	13	George	State to Stryker			2625		
"	16	State	Concord to Oakdale				515	
"	17	Oakdale	State to Prescott				350	
"	17	"	Prescott to Midway		326			
"	17	Minnehaha	Bradley to DeSoto		692			
"	18	Mt. Ida	West of Otsego		176			
"	22	Eagle	Washington to Seventh		1195			
"	25	Banfil	Seventh to Richmond	1393				
June	12	Toronto	Seventh to Jefferson		657			
"	18	Third	Jackson to 150 ft. west of Minnesota, relaid 12-in. in place of 6-in.			925		
July	5	Glencoe	At Columbia		45			
"	5	Columbia	Glencoe to Pennsylvania		745			
"	5	Pennsylvania	L'Orient to Columbia		317			
"	15	Lisbon	Douglas to Pleasant		973			
"	15	Pleasant	Lisbon to Western		399			
"	15	Western	Prairie to Pleasant		170			
"	19	Mississippi	South of Cayuga		98			
"	20	Cayuga	Mississippi to Courtland		1612			
August	3	Goodhue	Richmond to Duke		695			
"	3	Richmond	South of Goodhue		63			
"	8	S. Robert	George to Elizabeth		908			
"	12	Beaumont	Preble to Payne ave		275			
Sept.	16	Mayall Alley	200 south of Ninth street	255				
October	2	Tuscarora	Seventh to Milton		1450			
"	14	Delos	Stryker to Hall		345			
"	16	Goff	Dakota to Winnifred		105			
"	16	Dakota	Crossing Goff		80			
"	19	Winifred	Goff to Stryker		759			
"	22	Robie	Brown to Andrew		524			
"	26	Hall	Winifred to Isabel		616			
Nov.	7	Midway	Oakdale to Brown		1847			
"	8	Prescott	Oakdale to Woodbury		1:65			
"	11	Reaney	Payne to St. P. & D. Ry		248			
"	11	Eleventh	Cedar to Robert, relaid		700			
"	19	Armstrong	Seventh to Chatsworth		2770			
		Total		1648	23950	8869	3215	248

Total 4-in. pipe	1648
" 6-in. pipe	23950
" 12-in. pipe	8869
" 16-in. pipe	3215
" 20-in. pipe	248
	37930 feet, or 7 miles 970 feet.

PIPE LAID ON HIGH SERVICE SEASON 1889.

Date.		Street.	From Street to Street.	Number of Feet and Size of Pipe.					
				4-in.	6-in.	12-in.	16-in.	20-in.	24-in.
April	9	Lafond	Como to Claghorn		125				
"	9	Claghorn	Como to Van Buren		628				
"	9	Elfelt	South of Edmund	65					
"	17	Ellen	Dale to St. Albans		611				
"	11	Mackubin	South of Edmund		104				
"	25	Whitall	East of Burr		105				
"	26	Charles	St. Albans to Avon		1,306				
"	30	Aurora	Kent to St. Albans		1,320				
May	2	Fuller	Kent to Dale		709				
"	8	Rondo	Kent to Victoria		3,278				
"	8	St. Albans	Iglehart to Rondo	680					
"	10	Holly	Avon to Victoria		702				
"	11	St. Anthony	Dale to St. Albans		612				
"	13	Farrington	Carrol to Rondo		346				
"	20	Virginia	Thomas to Lafond	348					
"	20	Farrington	" "		343				
"	20	Elfelt	" "	338					
"	20	Gaultier	" "		335				
"	20	Thomas	Como to Western		2,387				
"	22	Snelling ave	University to St. P. M. & M. R'y.				4,817		
"	22	Walker	Hewitt to St. P. M. & M. R'y	807					
"	22	Taylor	Charlotte to Sheldon		2,457				
"	22	Hewitt	From 144 ft e Sheldon to Aldine		3,599				
"	22	Wesley	Snelling to Fry		621				
"	22	Capitol	Snelling to Simpson		868				
"	22	Wesley	Simpson to Pascal	394					
"	22	Simpson	Capitol to Hewitt		887				
"	22	Pascal	Minnehaha to Taylor		1,743				
"	22	Minnehaha	Snelling to Sheldon			2,124			
"	25	Maria	Eighth to North		265				
"	25	North	Maria to Seventh		1,035				
"	25	Bates	North to Murray		376				
"	27	Grotto	South of Carrol		121				
"	28	Hope	Sixth to Seventh		530				
"	30	Francis	Crossing Arcade		44				
"	30	Sixth	At Arcade		38				
"	30	Arcade	Francis to Seventh		888				
June	4	Front	Dale to Lexington			5,198			
"	4	Seveuth	Duluth to Ocean				975		
"	4	Duluth	North of Seventh		54				
"	7	St. Albans	Laurel to Ashland	321					
"	11	Dale	Capitol to Front	1,616					2,235
"	11	Burgess	Crossing of Dale		46				
"	11	Topping	" "		46				
"	11	Dayton Place	West of Maria	275					
"	11	Minnehaha	Arcade to Duluth		3,878				
"	11	Cypress	North of Euclid	45					
"	12	Case	Terrace and McMenomy		345	47			
"	21	Hastings	Mound to Maple			319			
"	22	Maple	Hastings to Hudson			805			
"	22	Plum	Bates to Maple		572				
"	22	Ellen	St. Albans to Victoria		1,956				
"	25	Fremont	Mendota to Arcade		615				
"	25	Arcade	Fremont to North Third		182				
"	25	North Third	Arcade to Maple		273				
"	27	Conway	Forest to Cypress		664				
July	1	Fremont	75 ft e of Cypress to Forest		793				
"	1	Forest	Conway to Francis		1,232				
"	6	Sims	Arcade to Forest		1,305				
"	8	Sims	Edgerton to Payne		655				
"	11	York	Edgerton to Burr		1,034				
"	11	Fairmount	Grotto to Victoria		1,364				

PIPE LAID ON HIGH SERVICE SEASON 1889.—Continued.

Date.		Street.	From Street to Street.	Number of Feet and Size of Pipe.					
				4-in.	6-in.	12-in.	16-in.	20-in.	24-in.
July	17	University	Prior to Raymond					4,585	
"	19	Raymond	University to Bayless				1,588		
"	19	Bayless	Raymond to N. P. R'y				1,800		
"	19	Pym	Bayless to Eustis			736			
"	19	Manvel	Robbins to Raymond		1,142				
"	19	Cromwell	Pym to Manvel		968				
"	19	Cudworth	Bayless to Eustis		985				
"	19	Raymond	Bayless to Manvel		1,022				
"	19	Hampton	Raymond to Hersey		1,646				
"	19	Sidney	Raymond to Bradford		610				
"	19	Bayless ave. E.	Raymond to Bayless ave	902					
"	25	Edgerton	York to Rose			3,905			
"	25	Third	West of Maria	367					
"	27	Osceola	Pleasant to Victoria		2,335				
"	31	Martin	Dale to Grotto		1,268				
"	31	Magnolia	Edgerton to Greenbrier		1,282				
August	1	Jessamine	Bradley to Greenbrier		1,894				
"	1	Carrol	Snelling to Fry		493				
"	3	Payne	Cook to Rose		1,267				
Aug.	13	Aurora	Victoria to Milton		617				
"	13	Fuller	" "		617				
"	13	Martin	" "		617				
"	13	St. Anthony	" "		617				
"	16	Cook	Mendota to Edgerton		3,176				
"	17	Arcade	Magnolia to Jessamine			374			
"	19	Snelling	University to Goodrich				6,378		
"	20	Summit	Snelling to Macalester	612					
"	21	Victoria	St. Clair to University				7,864		
"	21	Hague	Crossing of Victoria		42				
"	22	Jessamine	Forest to Weide		1,697				
"	22	Forest	Jessamine to Geranium		290				
"	24	Ashland	Avon to Milton		1,319				
"	24	Selby	Victoria to Milton		664				
"	27	Burr	Jenks to Cook		669				
"	27	Dayton	Victoria to Milton		529				
"	29	Clark	Whitall to Case		1,308				
Sept.	2	Iglehart	Victoria to Oxford		1,923				
"	3	Whitall	Clark to Bradley,		865				
"	5	Rondo	Victoria to Milton		616				
"	6	Elfelt	Charles to Edmund	270					
"	9	DeSota	Whitall to Case		1,308				
"	11	Dawson	Arcade to Mendota		612				
"	13	Mound	Burns avenue to Suburban			238			
"	23	Van Slyke	Lexington to Argyle		1,133				
"	23	Argyle	Van Slyke south 380 feet		380				
"	23	Work House	Extension		687				
"	23	Cross	At Lexington		25				
"	23	Lexington	Front to Van Slyke				2,630		
"	28	Burns	Mound to Griffith		2,753				
"	28	Lafond	Rice to Claghorn		571				
Oct.	7	Francis	Forest to Cypress		645				
"	7	Forest	At Francis		40				
"	9	Dawson	Mendota to Francis		635				
"	9	Bayless ave	From Robbins to Langford Pk				1,135		
"	9	Langford P P E	Bayless to Blake				427		
"	9	Blake	From Langford Park Place East to Scudder				186		
"	9	Scudder	From Blake to Langford ave				1,347		
"	9	Langford ave.	From Scudder to County Road				838		
"	9	County road	From Langford ave. to Dooley				256		
"	9	Wheeler	From Bayless ave. to Everett Ct			1,012			
"	9	Everett Court	Wheeler to St. P. M. & M. Ry		355				

PIPE LAID ON HIGH SERVICE SEASON 1889.—Concluded.

Date.		Street.	From Street to Street.	Number of Feet and Size of Pipe.					
				4-in.	6-in.	12-in.	16-in.	20-in.	24-in.
Oct.	9	Blake	Raymond to Scudder		282				
"	9	Raymond ave	Wheeler to Langford ave		1,785				
"	9	Priscilla	Raymond to Avenue E		542				
"	9	Pratt	Raymond to Gibbs		762				
"	9	Gordon	Scudder to Raymond		400				
"	9	Robbins	Bayless to Raymond Place		440				
"	11	Crocus Place	Goodrich to Fairmont	1,314					
"	12	Ravoux	Fuller to Martin	328					
"	15	Langford PPW	Bayless to Gordon			670			
"	15	Gordon	Langford to Nourse			463			
"	15	Langford PPW	Southwest corner to N. P. Ry		142				
"	16	Grotto	Iglehart to Rondo		559				
"	18	Dooley	County to Chelmsford		827				
"	19	Capitol	Pascal to Simpson		394				
"	22	Iglehart	Laura to Fairview		358				
"	26	Prior	At Marshall			58			
"	26	Marshall	From Prior to 150 ft. E. of Amos			711			
Nov.	8	Langford PPW	North of Gordon		39				
"	8	Knapp	Langford P.P.E to Langford av		879				
"	8	Langford P P E	Knapp to Gordon		415				
"	8	Gordon	Scudder to Langford P. P. E		246				
"	12	Virginia	University to Aurora	331					
				9,013	89,099	16,660	30,241	4,585	2,235

Total 4-inch pipe..... 9,013
Total 6-inch pipe..... 89,099
Total 12-inch pipe..... 16,660
Total 16-inch pipe..... 30,241
Total 20-inch pipe..... 4,585
Total 24-inch pipe..... 2,235

151,833 feet, or 28 miles, 3,993 feet.
Total mileage laid this year on high and low service, 35 miles, 4,963 feet.

LOCATION, SIZE AND NUMRER OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM, OR LOW SERVICE, TO DECEMBER 1, 1889.

Street.	From Street to Street.	Number of feet and size of pipe.							
		4-in.	6-in.	12-in.	16-in.	20-in.	24-in.	30-in.	36-in.
Alabama	Crossing State		55						
Armstrong	Seventh to Chatsworth		2805						
Audubon	East of Seventh		38						
Banfil	Smith ave. to Richmond	2280							
Bay	South of Seventh		35						
Beaumont	DeSoto to Payne		1821						
Becker Place	Lafayette to DeSoto		481						
Bedford	North to Minnehaha		1327						
Bradley	Seventh to Minnehaha	498	1298						
Broadway	Miss. River to University	498	1735		1938		1741		
Bruno	East of Lafayette		47						
Buffalo	Capitol to Genesee		631						
Burr	Patridge to Fauquier		2473						
Bancroft	Concord to Congress		935						
Canada	Ninth to University		2055						
Capitol	Mississippi to Courtland		1644						
Cedar	Third to Summit		289	2573		614			
Chestnut	Seventh to Washington		1235						
Colborne	Jefferson to Superior		1763						
College	Cedar to Smith avenue		1670						
Collins	Lafayette to Bedford		1016						
Cross Miss. Rv'r	Broadway to State				1089				
Concord	Isabel to Andrew			4294					
Congress	Dakota to Bancroft		3496						
Chicago	Dakota to South Robert		741						
Colorado	R. R. to Parnell		1240						
Clinton	Congress to Winifred		308						
Columbia	Glencoe to Pennsylvania		745						
Cayuga	Mississippi to Courtland		1612						
Dakota	Bridge to Goff		3527						
Decatur	Bedford to Beaumont		710						
DeSoto	Hopkins to Fauquier		453	1540					
Douglas	Seventh to Ramsey		1144						
Duke	Seventh to Cascade		1057						
Dousman	Von Minden to Goodhue		576						
Delos	Greenwood to Stryker		1992						
Daley	James to Jefferson		986						
Eagle	Spring to Seventh		1449						
Eighth	Wabasha to 110 feet east of Neill	4691							
Eleventh	Cedar to Olive	557	1238						
Elm	Exchange to Mil. Short Line	406							
Exchange	Wabasha to Wilkin	3962							
Eaton	At Indiana avenue and Fairfield crossing		51		100				
Edgerton	Minnehaha to Reaney		328						
Emma	Western to Short Line	373							
Fairfield	State to Dakota		2812						
Fauquier	Payne to DeSoto			1982					
Fifth	Third to Kittson	4902	1409						
Fort	Seventh to Tenth					1616			
Fourth	Kittson to Exchange		4865	1877					
Fourteenth	Broadway to Robert		1368						
Franklin	Elm to Ninth	2784							
Fillmore	Dakota to State		2808						
Garfield	Ramsey to Goodrich		1002						
Genesee	Mississippi to Buffalo		814						
Goodhue	Cliff to Duke		2817						
Goodrich	Mil. Short Line to Western		1260	1110					
Grace	Seventh to Colbourne		72						
Granite	Mississippi to Courtland		1604						
Grove	Monroe to Jackson	133	1310			1544			
Glencoe	Mississippi to Columbia		592						
George	State to Stryker			2625					
Goff	Dakota to Winifred		105						
Harrison	Douglas to 40 feet west of Western		1341						
Hopkins	DeSoto to Bradley		700						
Hall	Winifred to Isabel		616						
Indiana	State to Ethel			2462	2242				

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM, OR LOW SERVICE, TO DECEMBER 1, 1889—Continued.

Street.	From Street to Street.	Number of feet and size of pipe.							
		4-in.	6-in.	12-in.	16-in.	20-in.	24-in.	30-in.	36-in.
Isabel	State to Charlton			5055					
Jackson	Levee to Univessity	40	1223	3179		108			
Jefferson	Seventh to Webster			532					
James	185 feet west of Seventh		258						
Jessie	Minnehaha to Fauquier		634						
John	Third to Williams	1810	1528						
Kittson	Fourth to Seventh		846						
Kentucky	Crossing State		55						
Lafayette	Grove to DeSoto	205		150	1915				
Lee avenue	Seventh to Drake		1445						
Leech	Goodrich to Ramsey		1146						
Levee	Sibley to Jackson	340							
Locust	Seventh to Grove				777	248			
L'Orient	Thirteenth to Pennsylvania		1890						
Livingston	Delos to Wood		580						
Lisbon	Douglas to Pleasant		973						
McBoal	Wilkin to Douglas		1301						
Magnolia	Crossing Mississippi		18						
Market	Third to Fourth	250							
Minnehaha	Payne to DeSoto		1707						
Minnesota	Third to Twelfth	1484	1428						
Mississppi	Grove to terminal chamber		5978					16436	18
Monroe Place	Grove to Woodward	300							
Mt. Airy	Mississippi to L'Orient		330						
Mt. Ida	DeSoto to 176 feet west of Otsego		356						
Michigan	Crossing Seventh		59						
Mavall Alley	200 feet south of Ninth	255							
Midway	Oakdale to Brown		1847						
Nash	Pine to L'Orient		698						
Neill	Seventh to Eighth	325							
Ninth	Neill to Smith avenue	975	5145						
Norris	Canada to Temperance	761							
North	Bedford to DeSoto		851						
Olive	Sixth to Olmstead	1484							
Olmstead	John to Pine		651						
Oneida	South of Seventh		36						
Otsego	Lafavette to Mt. Ida		791						
Oakdale	State to Midway		326		350				
Partridge	Bradley to DeSoto	472							
Pine	Ninth to Olmstead	602	965						
Pleasant	Sixth to Western		3507						
Prince	John to Broadway		825						
Payne	Beaumont to Omaha R. R.		1092						
Pennsylvania	Mississippi to Columbia		661						
Preble	Beaumont to Minnehaha		471						
Prescott	Oakdale to Woodbury		1365						
Ramsey	Seventh to Pleasant		1352		307				
Randolph	Seventh to Milton		69	2818					
Richmond	At Seventh and at Goodrich		90						
Robert	Elizabeth to Central avenue		8881						
Reaney	St. P. & D. R'y to Edgerton		905						
Rosabel	Third to Seventh		1437						
Robie	State to Andrew		2341						
St. Clair	Seventh to Colborne		40	64					
St. Peter	Third to College		2866						
Seventh	Duluth R. R. to Tuscarora	350	1000	2241	13885	1508			
Second	East of Robert		18						
Sherman	Bluff to Pleasant		1937						
Sibley	Levee to Norris	1638	1450						
Sixth	Kittson to Pleasant	4936	1893						
Smith	Wilkin to Douglas		1074						
Smith avenue	College to McBoal		3924						
Somerset	John to Pine	669							
Spruce	Sibley to Wacouta	393							
State	Miss. River to Oakdale				6199				
Summit avenue	Robert to Cedar		859						
Stryker	George to Prospect Terrace		2106						
Temperance	Eighth to Thirteenth	1569							

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON GRAVITY SYSTEM OR LOW SERVICE TO DECEMBER 1, 1889—Concluded

Street.	From Street to Street.	Number of feet and size of pipe.							
		4-in.	6-in.	12-in.	16-in.	20-in.	24-in.	30-in.	36-in.
Tenth	Locust to College	1765	2123			1390			
Third	John to College		1130	6336					
Thirteenth	Pine to Jackson	310	1765						
Thompson	Ramsey to Pleasant		545						
Twelfth	Pine to Cedar	290				1274			
Toronto	Seventh to Jefferson		692						
Tennessee	Crossing State		51						
Tuscarora	Seventh to Milton		1487						
Von Minden	Dousman to Western		897						
Wacouta	Third to Spruce	1077	1378	64					
Walnut	100 feet south of I. P. to Pleasant	2420							
Warsaw	South of Seventh		35						
Washington	Chestnut to Sixth	2002		41					
Waverly Place	Lafayette to John		411						
Webster	Clay to Seventh		316						
Western ave.	Milwaukee R'y to Pleasant		2550						
Westminster	Waverly Place to N. P. R'y		1022						
Willius	Fifth to Seventh	550							
Wilkin	Mil. R. R. to Sherman		1215						
Winifred	Andrew to Stryker		4081						
Woodward	Burr to Bradley	319							
Wabasha	Second to Summit		3438			26			
Yankee	East of Seventh	31							
Main Line, old	Fauquier to Lake Phalen				6000		7024		
	Totals	48706	166865	38943	34802	8328	8765	16436	18

Low service—

Total 4-in. pipe	48706
Total 6-in. pipe	166865
Total 12-in pipe	38943
Total 16-in. pipe	34802
Total 20-in. pipe	8328
Total 24-in. pipe	8765
Total 30-in. pipe	16436
Total 36-in. pipe	18

322863 feet, or 61 miles and 783 feet.

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1889.

Street.	From Street to Street.	Number of Feet and Size of Pipe.						
		4-in.	6-in.	12-in.	16-in.	20-in.	24-in.	36-in.
Arundel	Summit to Iglehart	1,575						
Ashland	Western to Milton		5,889					
Aurora	Robert to Milton		7,159					
Arcade	Third to Jessamine		1,070	4,722				
Astoria	St. Anthony to Mil. ave		275					
Argyle	Van Slyke south 380 feet		380					
Bates	Murray to Hastings		376	3,035				
Beech	Seventh to Duluth		3,738					
Blair	Western to Dale		2,642					
Broadway	Thirteenth to Mt. Airy		407		533			
Brewster	University to Como		1,076					
Burr	Omaha to Cook		2,605					
Burgess	Crossing Dale		46					
Bayless	Raymond to Langford P				2,935			
Bayless Place	Raymond to Bayless ave	902						
Burns	Mound to Griffith		2,753					
Blake	Raymond to Langford P. P. E		282		186			
Canada	University to Valley		290					
Capitol	Western to Snelling		1,282					
Carrol	Rice to Cleveland		12,108					
Conway	Cypress to Maria		3,067					
Cedar	Summit to Como		2,486					
Central ave	East line of Central Park to Rice	557	1,254					
Central P D E & W	Summit to Central ave	1,209						
Charles	Rice to Avon		5,862					
College	Rice to Third		1,165					
Como	Rice to Dale					6,555		
Cherry	267 ft. W. of Hoffman to Maria	267	565					
Cook	Mendota to Edgerton		3,251					
Case	Forest to Terrace		345	6,551				
Claghorn	Lafond to Van Buren		628					
Cypress	North of Euclid	45						
Cromwell	Pym to Manvel		968					
Cudworth	Bayless to Eustis		985					
Clark	Whitall to Case		1,308					
Cross	At Lexington		25					
County Road	Langford ave. to Dooley				256			
Crocus Place	Goodrich to Fairmont	1,314						
Dale	Fairmont to Reservoir	4,800		2,110	5,280	1,453	14,482	1,560
Dayton	Summit to Milton		3,247	4,675				
Duluth	North of Seventh		54					
Dayton Place	West of Maria	275						
DeSoto	Whitall to Case		1,308					
Dawson	Arcade to Francis		1,247					
Dooley	County road to Chelmsford		827					
Earl	Beech to Seventh			1,641				
Edmund	Rice to Grotto		6,556					
Eichenwold	Sixth to Seventh		532					
Ellen	Rice to Victoria		7,847					
Euclid	Maple to Earl		2,391					
Elfelt	Charles to Lafond	673						
Edgerton	York to Rose			3,905				
Everett Court	Wheeler to St. P., M. & M. R'y		355					
Farrington	Summit to Lafond		3,089					
Fauquier	Frank to Weide		3,606					
Fuller	Rice to Milton		5,933					
Fifth	Maple to 340 ft. west of Maria		1,438					
Floral	Grand to Summit	480						
Fourth	Mendota to 400 ft. west of Maria		2,705					
Francis	Arcade to Cypress		1,264					
Front	Rice to Lexington			10,483				

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1889—Continued.

Street.	From Street to Street.	Number of Feet and Size of Pipe.						
		4-in.	6-in.	12-in.	16-in.	20-in.	24-in.	36-in.
Forest	Conway to Geranium		2,530					
Fairmount	Dale to Victoria		2,320	518				
Feronia	Fairview to Prior		1,360					
Fremont	Arcade to 75 ft. east of Cypress		2,053					
Grand	Lawton to 63 ft. west of Milton		5,008					
Grove	Seventh to Pine				2,618			
Grotto	Lincoln to Rondo		4,202					
Goodrich	From 180 ft. west of Victoria to 782 ft. east of Dale		3,623					
Greenbrier	Seventh to Margaret			650				
Gaultier	Thomas to Lafond		335					
Gordon	Nourse to Raymond		646	463				
Hoffman	Clermont to Seventh		2,601					
Holly	Western to Victoria		5,287					
Hague	Dale to Victoria		2,642					
Hudson	Maria to Mendota		1,084	194				
Hastings	Bates to Maple			725				
Hewitt	From 144 ft. e of Sheldon to Aldine		3,599					
Hope	Sixth to Seventh		530					
Hampton	Raymond to Hersey		1,646					
Iglehart	Wabasha to Cleveland		14,056					
Jackson	Viola to Manitoba bridge		236	1,084	145			
Jay	St. Anthony to Fuller		656					
Jessamine	Forest to Bradley		3,591					
Kent	Portland to Carrol	2,201						
Kenwood Park	St. Albans around said park		767					
Knapp	Langford P. P. E. to Langford ave		879					
Laura	Waltham to University		1,211					
Laurel	Nina to Fisk		5,982					
Lawton	Grand to Selby		480					
Lincoln	Oakland to Milton		4,231					
Louis	Nelson to Fuller		2,122					
Linden	At Mount Airy		50					
Lafond	Rice to Grotto		4,612					
Lynnhurst E & W	University to Feronia		1,850					
Lexington	Front to Van Slyke				2,630			
Langford P. P. E.	Bayless to Knapp		415		427			
Langford P. P. W.	Bayless to Gordon		181	670				
Langford ave	Scudder to County road				838			
McCarron road	Pump house to Dale					6,124		
Mackubin	Summit to Edmund		5,708					
Maple	Hastings to Seventh		2,660	811				
Margaret	Earl to Greenbrier		3,862					
Martin	Central to Milton		7,739					
Maria	Cherry to North		3,971					
Marshall	Western to Prior		2,640	3,351				
Mendota	Hudson to Fauquier		655	3,286				
Mt. Airy	L'Orient to Robert		2,024					
Maryland	At Dale			10				
Marion	University to Lafond		1,639					
Minnehaha	Duluth to Snelling		3,878	2,146				
Mound	Hastings to Burns			1,536				
Milwaukee ave	Merriam Place to Astoria		570					
Manvel	Robbins to Raymond		1,142					
Magnolia	Edgerton to Greenbrier		1,282					
Nelson	Summit to Western		2,422					
Nina	Summit to Selby		800					
North	Maria to Seventh		1,035					
Oakland	Ramsey to Summit		3,602					
Olive	Olmsted to Pennsylvania		1,057					
Oakley	Lynnhurst west to Prior		451					

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1889—Continued.

Street.	From Street to Street.	No. of Feet and Size of Pipe.						
		4-in.	6-in.	12-in.	16-in.	20-in.	24-in.	36-in.
Osceola	Pleasant to Victoria		2,335					
Park Place	Park drive S. W	574						
Park ave	Martin to Viola		1436					
Pine	Grove to Pennsylvania		1820		387			
Portland	Summit to Avon		4589					
Pennsylvania	Olive to Pine		342					
Plum	Maple to Hoffman		1102					
Prior	Marshall to University			3447				
Payne	Omaha Ry. to Rose		3982					
Pascal	Minnehaha to Taylor		1743					
Pym	Bayless to Eustis			736				
Priscilla	Raymond ave. E.		542					
Pratt	Raymond to Gibbs		762					
Rice	College to Manitoba Ry		495	1207	2390	1154		
Robert	From 171 feet south of University to Mt. Airy		770					
Rondo	Rice to Terrace Park ave		9879					
Reaney	Frank to Greenbrier		4478					
Ramsey	Oakland to Summit		1259					
Ross	Atlantic to Seventh		2450					
Ravoux	Rondo to Fuller	616						
River	Maria to Hoffman	342						
Ravine	Maple to 344 feet west of Maria	1423						
Raymond	University to Langford ave		2807		1588			
Robbins	Bayless to Raymond P		440					
St. Anthony	Rice to Cleveland		8868					
St. Peter	College to University		2557					
Selby	Summit to Milton		7893					
Seventh	Ocean to Grove				9395			
Sherburne	Jackson to Rice	400	1308					
Sinnen	Sixth to Seventh		541					
Suction Main	Pump House to Terminal						907	
Summit	C. P. D. E. to Macalester	872	4316	10830				
Summit Place	Nelson to Fuller		2122					
St. Albans	300 feet S. of Fairmont to Rondo	1377	300					
Sims	Forrest to Edgerton		3922					
Summit Court Alley	East of Lawton		362					
Short	Maria to Hoffman		572					
Snelling ave	Goodrich to Manitoba Ry				11195			
Simpson	Capitol to Hewitt		887					
Sixth	Hoffman to Arcade		2496					
Sidney	Raymond to Bradford		610					
Scudder	Blake to Langford ave				1347			
Third	Cypress to Summit	367	4154					
Thirteenth	Pine to Broadway				778			
Tilton	Wabasha to Rice		1278					
Thomas	Como to Dale		5029					
Topping	At Como and at Dale		118					
Taylor	Charlotte to Sheldon		2467					
University	Broadway to Raymond			5304	3594	19164		
Valley	Broadway to Jackson				1789			
Viola	Jackson to Rice		1653					
Victoria	St. Clair to University				7864			
Virginia	Summit to Lafond	1192	1798					
VanBuren	Western to Dale		649					
VanSlyke	Lexington to Argyle		1133					
Wabasha	Summit to Park ave	537	842					
Western	Summit to Como			1775	6285			
Williams	Olive to Mississippi		857					
Waltham	Laura to Prior	959						

LOCATION, SIZE AND NUMBER OF FEET OF WATER MAINS LAID ON HIGH SERVICE TO DECEMBER 1, 1889.—Concluded.

Street.	From Street to Street.	Number of Feet and Size of Pipe.						
		4-in.	6-in.	12-in.	16-in.	20.in.	24-in.	36-in.
Wilder	Iglehart to St. Anthony		1388					
Whitall	Bradley to Clark		970					
Walker	Hewitt to M. & M. Ry	807						
Wesley	Pascal to Fry	394	621					
Workhouse	Extension west of Lexington		687					
Wheeler	Bayless to Eustis C			1012				
York	Forest to Burr		4913					
Total		24158	341210	76877	62460	34450	15389	1560

High Service—

Total 4-in. pipe	24158
Total 6-in. pipe	341210
Total 12-in. pipe	76877
Total 16-in. pipe	62460
Total 20-in. pipe	34450
Total 24-in. pipe	15389
Total 36-in. pipe	1560

556104 feet, or 105 miles and 1704 feet.

Total pipe laid on High and Low service to Dec. 1, 1889:

High Service	556104
Low Service	322863

878,967 feet or 166 miles and 2487 feet.

Also, 4½ miles of brick aqueduct 5½x6 feet with necessary waste weirs and gate houses.

LIST OF HYDRANTS.

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
1	Woodward and Monroe	Low	Single	4	40
2	Grove and Lafayette	"	"	6	42
3	Westminster and Waverly	"	"	6	38
4	Westminster 450 feet north of Waverly	"	"	6	39
5	Grove and Olive	"	"	6	40
6	John and Somerset	"	"	4	38
7	Olive and Somerset	"	"	4	38
8	Pine and Thirteenth	"	"	6	40
9	Thirteenth and Mississippi	"	"	6	39
10	Grove and Mississippi	"	"	20	40
11	Pine and Eleventh	"	"	4	41
12	Canada and Grove	"	"	6	37
13	Canada and Spruce	"	"	6	40
14	Grove, in middle of block between Canada and Temperance	"	"	20	37
15	Jackson and Grove	"	"	6	32
16	Robert and Twelfth	"	"	6	30
17	Robert and Eleventh	"	"	6	29
18	Minnesota and Eleventh	"	"	6	29
19	Eleventh and Cedar	"	"	6	28
20	College and Wabasha	"	"	6	27
21	Wabasha and Tenth	"	"	6	29
22	St. Peter and Tenth	"	"	6	27
23	St. Peter and College	High	"	6	79
24	St. Peter and Summit	"	"	6	68
25	Tenth and College	Low	"	6	21
26	Tenth, between St. Peter and Fort	"	"	20	27
27	St. Peter and Exchange	"	"	6	31
28	Wabasha and Exchange	"	"	6	31
29	St. Peter and Ninth	"	"	6	33
30	Wabasha and Ninth	"	"	6	33
31	Jackson and Ninth	"	"	6	38
32	Ninth and Sibley	"	"	6	41
33	Ninth and Canada	"	"	6	43
34	Ninth and Pine	"	"	6	46
35	Ninth and John	"	"	6	44
36	Ninth and Locust	"	"	6	45
37	Eighth and Neill	"	"	4	46
38	Fifth and Locust	"	"	6	57
39	Eighth and Olive	"	"	4	45
40	Broadway and Eighth	"	"	6	44
41	Eighth and Wacouta	"	"	4	44
42	Jackson and Eighth northeast corner	"	Double	12	43
43	Robert and Eighth	"	Single	6	43
44	Burr and Partridge	"	"	6	40
45	Burr and Hopkins	"	"	6	37
46	DeSoto and Hopkins	"	"	6	38
47	Third and Smith avenue	"	"	6	31
48	Third and Pleasant	"	"	6	26
49	College and Third	High	"	6	71
50	Exchange and Sherman	Low	"	4	39
51	Walnut and Exchange	"	"	4	42
52	Sherman and Seventh	"	"	6	37
53	Seventh and Walnut, southeast corner	"	Double	20	41
54	Chestnut and Seventh, northeast corner	"	Single	6	38
55	Fort and Third	"	"	20	34
56	Fourth and Seventh	"	"	12	34
57	Seventh, back of Winslow House	"	"	12	34
58	Seventh and Fifth	"	"	12	33
59	Seventh and Franklin	"	"	12	32
60	Seventh and Sixth	"	"	12	33
61	Seventh and St. Peter	"	"	12	34
62	Seventh and Wabasha northwest corner	"	"	16	35
63	Cedar and Seventh, northwest corner	"	"	12	41
64	Seventh and Minnesota, northwest corner	"	"	16	44
65	Seventh and Robert, northwest corner	"	Double	16	45
66	Jackson and Seventh, northeast corner	"	"	12	45
67	Seventh and Sibley, northwest corner	"	"	16	45
68	Seventh and Wacouta, northeast corner	"	"	16	44
69	Seventh and Rosabel, northwest corner	"	"	16	44

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
70	Broadway and Seventh, southwest corner	Low	Single	16	44
71	Seventh and Pine, southwest corner	"	Double	16	43
72	Seventh and Olive, southwest corner	"	"	16	43
73	Seventh and John, southwest corner	"	"	16	45
74	Seventh and Locust, southwest corner	"	"	16	46
75	Seventh and Neill	"	Single	6	49
76	Willius and Sixth	"	"	4	50
77	Sixth and Pine	"	"	4	44
78	Jackson and Sixth, northeast corner	"	Double	12	46
79	Robert and Sixth	"	Single	6	46
80	Sixth and Minnesota	"	"	4	44
81	Sixth and Wabasha	"	"	6	31
82	Fifth and Washington	"	"	4	32
83	Fifth and Wabasha	"	"	6	34
84	Fifth and Cedar	"	"	4	42
85	Fifth and Minnesota	"	"	4	44
86	Robert and Fifth	"	"	6	46
87	Jackson and Fifth, southeast corner	"	Double	12	47
88	Fourth and Sibley, northwest corner	"	Single	6	54
89	Jackson and Fourth, southeast corner	"	Double	12	52
90	Fourth and Robert, northwest corner	"	Single	6	46
91	Fourth and Minnesota, northwest corner	"	"	6	45
92	Fourth and Wabasha	"	"	6	32
93	Washington and Fourth	"	"	4	33
94	Third and Exchange, northwest corner	"	"	12	35
95	Third, between Exchange and Franklin	"	"	12	35
96	Third and Franklin, northeast corner	"	"	12	34
97	Third and Washington, northeast corner	"	"	12	34
98	Third and Market, northeast corner	"	"	12	33
99	Washington and Eagle	"	"	4	64
100	Third and St. Peter, northeast corner	"	"	12	33
101	Wabasha and Third	"	"	6	33
102	Cedar and Third, northwest corner	"	"	12	32
103	Third and Minnesota, northeast corner	"	Double	12	40
104	Third and Robert, northwest corner	"	"	12	47
105	Third and Jackson, southeast corner	"	Single	12	54
106	Sibley and Third, southwest corner	"	Double	6	62
107	Jackson and Levee	"	Single	6	67
108	Jackson and Tenth	"	"	12	34
109	Jackson and Eleventh	"	"	12	33
110	Sibley and Levee	"	"	4	69
111	St. Peter and Fifth	"	"	6	33
112	Ninth and Robert	"	"	6	35
113	Tenth and Wacouta	"	"	4	41
114	Mississippi and Nash	"	"	6	35
115	Broadway and Twelfth	"	"	6	40
116	Broadway and Tenth	"	"	6	43
117	Elm and Franklin	"	"	4	37
118	Ninth and Cedar	"	"	6	35
119	Fourth and St. Peter	"	"	6	32
120	Sixth and Cedar	"	"	4	43
121	Fourth and Franklin	"	"	6	33
122	Seventh and Leech	"	"	12	35
123	Grove and John	"	"	6	40
124	Grove and Pine	"	"	6	40
125	Canada and Tenth	"	"	6	41
126	Ninth and Wacouta	"	"	6	42
127	Eighth and Temperance	"	"	4	45
128	Seventh and Willius	"	"	6	48
129	Seventh and Kittson	"	"	6	51
130	Ramsey and Leech	"	"	6	36
131	Collins and Lafayette	"	"	6	28
132	Sibley and Sixth	"	"	6	47
133	Willius and Fifth	"	"	4	58
134	Eighth and Willius	"	"	4	45
135	Sibley and Tenth	"	"	4	40
136	Pleasant, between Third and Chestnut	"	"	6	28
137	Pleasant and Chestnut	"	"	6	29
138	Pleasant and Walnut	"	"	6	30
139	Smith avenue, between Third and Chestnut	"	"	6	33

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
140	Fort, between Ninth and Tenth	Low	Single	20	30
141	Fort and Ninth	"	"	20	29
142	Fort and Sixth	"	"	20	32
143	Fort and Fifth	"	"	20	33
144	Canada and Thirteenth	"	"	6	39
145	Thirteenth, between Canada and Temperance	"	"	6	37
146	Thirteenth and Temperance	"	"	6	36
147	Mississippi and Mt. Airy	"	"	6	33
148	Mississippi and Glencoe	"	"	6	30
149	Mississippi, between Glencoe and Pennsylvania	"	"	6	29
150	Mississippi and Pennsylvania	"	"	6	26
151	Pine and Nash	"	"	6	39
152	Olmsted and Pine	"	"	6	38
153	Olmsted and Olive	"	"	6	40
154	Olmsted and John	"	"	6	40
155	Ninth and Exchange	"	"	6	31
156	Ninth and Franklin	"	"	6	32
157	Wabasha and Summit	"	"	6	19
158	Robert and Tenth	"	"	6	30
159	Canada and Norris	"	"	6	35
160	Norris and Sibley	"	"	4	37
161	Spruce and Wacouta	"	"	4	40
162	Spruce and Sibley	"	"	4	38
163	College, between St. Peter and Tenth	"	"	6	22
164	Fourth and Wacouta	"	"	6	58
165	Sibley and Fifth	"	"	6	50
166	Walnut and Smith avenue	"	"	4	36
167	Fourth and Rosabel	"	"	6	62
168	Broadway, 150 feet south of Third	"	"	16	69
169	Third and Broadway, northeast corner	"	Double	12	67
170	Third and Rosabel	"	"	12	66
171	Third and Wacouta, northwest corner	"	"	12	64
172	Rice and Summit	High	Single	6	72
173	Fourth and Market	Low	"	6	32
174	Collins and Bedford	"	"	6	30
175	Burr and Collins	"	"	6	21
176	Tenth and Pine	"	"	6	43
177	Tenth and Olive	"	"	6	44
178	Tenth and John	"	"	6	43
179	Fourteenth and Canada	"	"	6	37
180	Fourteenth, between Canada and Jackson	"	"	6	37
181	Partridge and Bradley	"	"	4	38
182	Fourth and Broadway, northwest corner	"	"	6	62
183	Exchange and Sixth	"	"	4	32
184	North and Burr	"	"	6	30
185	North and DeSoto	"	"	6	27
186	Rosabel and Fifth	"	"	6	55
187	Rosabel and Sixth	"	"	6	48
188	Pleasant and Sherman	"	"	6	33
189	Fourth and Jackson, northwest corner	"	"	6	51
190	John and Fourth	"	"	6	65
191	John and Fifth	"	"	6	56
192	John and Sixth	"	"	6	46
193	Bruno and Lafayette	"	"	6	40
194	Canada and University	"	"	6	30
195	Becker and Lafayette	"	"	6	33
196	Pleasant and Sixth	"	"	6	24
197	Jackson and Thirteenth	"	"	6	34
198	Jackson and Fourteenth	"	"	6	31
199	Wilkin and McBoal	"	"	6	36
200	Wacouta and Third	"	"	6	65
201	McBoal and Leech	"	"	6	35
202	Wacouta and Sixth	"	"	6	48
203	Wacouta and Fifth	"	"	6	52
204	Fifth and Broadway	"	"	4	53
205	Sixth and Broadway	"	"	4	50
206	Tenth and Minnesota	"	"	6	30
207	Tenth and Cedar, northeast corner	"	"	6	29
208	Jackson and University	"	"	6	23
209	Cedar and Eighth	"	"	12	40

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
210	Cedar and Exchange	Low	Single	12	32
211	Ninth and Minnesota	"	"	6	37
212	Wilkin and Smith	"	"	6	37
213	Fifth and Neill	"	"	6	59
214	Kittson and Fifth	"	"	6	61
215	Kittson and Sixth	"	"	6	56
216	Sixth and Neill	"	"	4	53
217	Otsego and Mt. Ida	"	"	6	15
218	Bradley and Woodward	"	"	6	41
219	Bradley and North	"	"	6	34
220	Hopkins and Bradley	"	"	6	36
221	Smith ave. and Chestnut	"	"	6	34
222	Bedford and Beaumont	"	"	6	24
223	Bedford and Minnehaha	"	"	6	18
224	Thompson and Pleasant	"	"	6	34
225	Thompson and Ramsey	"	"	6	35
226	Smith ave. and Smith st	"	"	6	34
227	Fourth and Cedar	"	"	6	39
228	Eighth and Minnesota	"	"	4	40
229	Beaumont and Bradley	"	"	6	22
230	Beaumont and DeSoto	"	"	6	21
231	Burr and Beaumont	"	"	6	19
232	Burr and Minnehaha	"	"	6	15
233	Burr and Fauquier	"	"	6	18
234	Smith ave. and Seventh st	"	"	6	34
235	Fourth and Pine	"	"	12	59
236	Fourth and Olive	"	"	12	64
237	Smith and Seventh	"	"	6	34
238	Fourth and Exchange	"	"	6	34
239	McBoal and Seventh	"	"	6	33
240	St. Peter and Sixth	"	"	6	33
241	Prince and Pine	"	"	6	65
242	Prince and Olive	"	"	6	65
243	Prince and John	"	"	6	66
244	Mt. Airy and L'Orient, northeast corner	"	"	6	21
245	Smith ave. and Fifth	"	"	6	31
246	Smith ave. and Sixth	"	"	6	29
247	Smith ave. and College	"	"	6	18
248	Douglas and Seventh	"	"	6	34
249	Goodrich and Seventh	"	"	6	34
250	Goodrich and Smith ave	"	"	6	38
251	Goodrich and Leech	"	"	6	41
252	Capitol and Mississippi	"	"	6	20
253	Genesee and Mississippi	"	"	6	23
254	Granite and Mississippi	"	"	6	28
255	Second and Robert	"	"	6	57
256	Pleasant and Ramsey	"	"	6	32
257	Ramsey and Douglas	"	"	6	34
258	Sherman and Franklin	"	"	6	38
259	Chestnut and Exchange	"	"	6	49
260	Exchange and Eagle	"	"	4	50
261	Williams and Pine	High	"	6	73
262	Pine 200 feet south of Williams	"	"	6	60
263	Topping and Como	"	"	6	56
264	Capitol and Western	"	"	6	54
265	Blair and Western	"	"	6	57
266	Thomas and Western	"	"	6	55
267	University and Western	"	"	12	56
268	Aurora and Western	"	"	6	54
269	Fuller and Western	"	"	6	52
270	Martin and Western	"	"	6	51
271	St. Anthony and Western	"	"	6	54
272	Rondo and Western	"	"	6	57
273	Carroll and Western	"	"	6	46
274	Iglehart and Western	"	"	6	36
275	Marshall and Western	"	"	6	32
276	Dayton and Western	"	"	12	31
277	Western and Selby	"	"	12	32
278	Western and Laurel	"	"	12	31
279	Western and Ashland	"	"	12	33

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
280	Western and Holly	High	Single	12	34
281	Western and Portland	"	"	12	34
282	Summit and Portland	"	"	12	34
283	Summit and Arundel	"	"	12	31
284	Summit and Mackubin	"	"	12	30
285	Summit and Kent	"	"	12	36
286	Summit and Oakland	"	"	12	35
287	Holly and Dale	"	"	6	36
288	Holly and Kent	"	"	6	34
289	Holly and Mackubin	"	"	6	32
290	Holly and Arundel	"	"	6	33
291	Ashland and Arundel	"	"	6	32
292	Ashland and Mackubin	"	"	6	30
293	Ashland and Kent	"	"	6	33
294	Ashland and Dale	"	"	6	37
295	Laurel and Dale, northeast corner	"	"	6	35
296	Laurel and Kent	"	"	6	31
297	Laurel and Mackubin, northwest corner	"	"	6	30
298	Laurel and Arundel	"	"	6	30
299	Dayton and Dale	"	"	12	30
300	Dayton and Kent	"	"	12	28
301	Dayton and Mackubin	"	"	12	29
302	Dayton and Arundel	"	"	12	33
303	Dayton and Virginia	"	"	12	30
304	Dayton and Farrington	"	"	12	30
305	Dayton, between Summit and Farrington	"	"	12	31
306	Summit and Dayton	"	"	6	43
307	Summit and Selby	"	"	6	37
308	Summit, head of Walnut	"	"	6	37
309	Summit and Nina	"	"	6	33
310	Summit and Farrington	"	"	6	31
311	Summit and Virginia	"	"	6	33
312	Farrington and Laurel	"	"	6	32
313	Farrington and Selby	"	"	6	31
314	Selby and Nina	"	"	6	32
315	Nina and Laurel	"	"	6	32
316	Westminster, 200 feet south of St. P. M. & M. Ry.	Low	"	6	30
317	Thirteenth and Broadway	"	"	6	39
318	Temperance and Norris	"	"	4	37
319	Banfil and Seventh	"	"	4	33
320	Goodhue and Seventh	"	"	6	33
321	Yankee and Seventh	"	"	4	34
322	Western and Seventh	"	"	6	35
323	St. Clair and Seventh	"	"	6	34
324	Richmond and Seventh	"	"	6	34
325	Seventh and Colbourne	"	"	16	36
326	Chestnut and Franklin	"	"	6	52
327	Twelfth and Jackson	"	"	20	32
328	Twelfth and Minnesota	"	"	20	29
329	Twelfth and Cedar	"	"	20	27
330	Cedar and Summit	"	"	6	23
331	Chestnut and Washington	"	"	6	62
332	Laurel and Virginia	High	"	6	32
333	Selby and Virginia	"	"	6	32
334	Mackubin and Laurel, southwest corner	"	"	6	30
335	Portland and Arundel	"	"	6	32
336	Portland and Mackubin	"	"	6	29
337	Portland and Kent	"	"	6	34
338	Portland and Dale	"	"	6	34
339	Selby and Arundel	"	"	6	33
340	Selby and Mackubin	"	"	6	29
341	Selby and Kent	"	"	6	29
342	Selby and Dale	"	"	6	31
343	Carroll and Arundel	"	"	6	36
344	Carroll and Mackubin	"	"	6	34
345	Carroll and Kent	"	"	6	30
346	Kent and Iglehart	"	"	4	29
347	Marshall and Dale	"	"	6	31
348	Marshall and Kent	"	"	6	27
349	Marshall and Mackubin	"	"	6	31

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
350	Rondo and Arundel	High	Single	6	55
351	Rondo and Mackubin	"	"	6	42
352	Iglehart and Arundel	"	"	6	31
353	Iglehart and Mackubin	"	"	6	33
354	Marshall and Arundel	"	"	6	31
355	McBoal and Douglas	Low	"	6	33
356	Douglas and Harrison	"	"	6	33
357	Summit and Third	High	"	12	50
358	Summit and Nelson	"	"	12	52
359	College and Sixth	"	"	6	70
360	Nelson and Virginia	"	"	6	30
361	Nelson and Farrington	"	"	6	31
362	Nelson and Louis	"	"	6	43
363	Nelson and Summit Place	"	"	6	48
364	Carroll and Virginia	"	"	6	48
365	Carroll and Farrington	"	"	6	50
366	Carroll and Louis	"	"	6	56
367	Carroll and Summit Place	"	"	6	60
368	Carroll and Ravoux	"	"	6	63
369	Park Place Park	"	"	4	67
370	Iglehart and Virginia	"	"	6	39
371	Iglehart and Farrington	"	"	6	40
372	Iglehart and Louis	"	"	6	50
373	Douglas and Lisbon	Low	"	6	35
374	Iglehart and St. Peter	High	"	6	65
375	Iglehart and Wabasha	"	"	6	72
376	Iglehart and Summit Place	"	"	6	54
377	Iglehart and Ravoux	"	"	6	63
378	Iglehart and Rice	"	"	6	68
379	Rice and Rondo	"	"	16	65
380	Rice and St. Anthony	"	"	16	57
381	Rice and Martin	"	"	16	58
382	Rice and Fuller	"	"	16	57
383	Rice and Aurora	"	"	16	57
384	Rice and University	"	"	20	54
385	Rice and Ellen	"	"	20	53
386	Rice and Charles	"	"	20	55
387	Rice and Edmund	"	"	20	56
388	Rice and Como	"	"	12	56
389	Tilton and St. Peter	"	"	6	61
390	Smith avenue and Ramsey	Low	"	6	35
391	St. Peter and Martin	High	"	6	60
392	Martin and Park	"	"	6	62
393	Central and Wabasha	"	"	6	66
394	Tilton and Wabasha	"	"	6	67
395	Central and Cedar	"	"	6	60
396	Aurora and Cedar	"	"	6	53
397	Aurora and Robert	"	"	6	67
398	Smith avenue and Sherman	Low	"	6	36
399	Bradley and Seventh, northwest corner	"	"	6	40
400	Broadway and Fourteenth	"	"	4	38
401	Summit and Dale	High	"	12	33
402	Seventh and Brook	Low	"	6	49
403	Tenth and Cedar, northwest corner	"	"	20	29
404	Grand and Lawton	High	"	6	34
405	Grand and Floral	"	"	6	31
406	Grand and Oakland	"	"	6	46
407	Grand and Dale	"	"	6	38
408	Grand and St. Albans	"	"	6	37
409	Valley and Broadway	"	"	16	86
410	Grand and Grotto	"	"	6	33
411	Grand and Avon	"	"	6	31
412	Grand and Victoria	"	"	6	32
413	University and Marion	"	"	12	59
414	University and Gaultier	"	"	12	57
415	University and Farrington	"	"	12	57
416	University and Virginia	"	"	12	57
417	Marshall and St. Albans	"	"	12	35
418	University and Arundel	"	"	12	53

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
419	Dayton and St. Albans	High	Single	6	33
420	Dayton and Grotto	"	"	6	33
421	Dayton and Miller	"	"	6	31
422	Dayton and Fisk	"	"	6	34
423	St. Peter and Aurora	"	"	6	54
424	St. Peter and University	"	"	6	53
425	Park and University	"	"	6	52
426	Cedar and University	"	"	6	45
427	Cedar and Sherburne	"	"	6	35
428	Sherburne, 350 feet east of Cedar	"	"	4	36
429	Hoffman and Seventh	"	"	6	83
430	Fourth, 400 feet west of Maria	"	"	6	89
431	Maria and Seventh	"	"	6	69
432	Maria and Sixth	"	"	6	68
433	Maria and Fifth	"	"	6	67
434	Maria and Fourth	"	"	6	69
435	Maria and Third	"	"	6	70
436	Maria and Conway	"	"	6	72
437	Maria and Ravine	"	"	6	73
438	Maria and Euclid	"	"	6	74
439	Maria and Hudson	"	"	6	73
440	Bates and Plum	"	"	12	66
441	Bates and Hudson	"	"	12	63
442	Bates and Euclid	"	"	12	61
443	Bates and Ravine	"	"	12	59
444	Bates and Conway	"	"	12	59
445	Bates and Third	"	"	12	62
446	Bates and Fourth	"	"	12	60
447	Bates and Fifth	"	"	12	57
448	Bates and Sixth	"	"	12	55
449	Bates and Seventh	"	"	12	60
450	Fifth and Maple	"	"	6	44
451	Third and Maple	"	"	6	46
452	Hudson and Maple	"	"	6	47
453	Valley and Canada	"	"	16	75
454	Seventh and Maple	"	"	16	48
455	Seventh and Hope, northwest corner	"	"	16	40
456	Seventh and Margaret	"	"	16	42
457	Seventh and Beech	"	"	16	48
458	Goodhue and Dousman	Low	"	6	40
459	Goodhue and Cliff	"	"	6	39
460	Grace and Colborne	"	"	6	36
461	Colborne and Jefferson	"	"	6	38
462	Duke and Seventh	"	"	6	35
463	Seventh and Minnehaha, northwest corner	High	"	16	55
464	Seventh and Reaney	"	"	16	52
465	Seventh and Forest	"	"	16	52
466	Nash and L'Orient	Low	"	6	37
467	Jessie and Fauquier	"	"	6	21
468	Seventh and Erie	"	"	16	36
469	Seventh and Fauquier	High	"	16	56
470	Seventh and Cypress	"	"	16	60
471	Seventh and Ross	"	"	16	62
472	Seventh and Earl	"	"	16	61
473	Ross and Earl	"	"	6	59
474	Edmund and Marion	"	"	6	58
475	Fauquier and Cypress	"	"	6	57
476	Fauquier and Earl	"	"	6	56
477	Fauquier and Payne	Low	"	12	10
478	Fauquier and Edgerton	"	"	12	19
479	Fauquier and Bradley	"	"	12	22
480	DeSoto and Fauquier	"	"	12	24
481	DeSoto and Minnehaha	"	"	12	13
482	Fifth, 350 feet west of Maria	High	"	6	73
483	Fauquier and Forest	"	"	6	55
484	Fauquier and Mendota	"	"	6	63
485	Fauquier and Arcade	"	"	6	61
486	Lincoln, between Oakland and Dale	"	"	6	39
487	Lincoln and Dale	"	"	6	36

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
488	Hoffman and Sixth	Hish	Single	6	83
489	Mendota and Reaney	"	"	6	59
490	Ninth and Broadway	Low	"	6	44
491	Oneida and Seventh	"	"	6	30
492	Franklin and Fifth	"	"	4	33
493	Eleventh and Olive	"	"	4	41
494	Martin and Arundel	High	"	6	48
495	Lincoln and St. Albans	"	"	6	39
496	Lincoln and Grotto	"	"	6	33
497	Lincoln and Avon	"	"	6	33
498	Fuller and Arundel	"	"	6	46
499	Fuller and Mackubin	"	"	6	43
500	Fuller and Kent	"	"	6	40
501	Goodhue and Ann	Low	"	6	33
502	Goodhue and Western	"	"	6	32
503	Goodhue and Richmond	"	"	6	31
504	Portland and St. Albans	High	"	6	35
505	Aurora and Kent	"	"	6	46
506	Aurora and Mackubin	"	"	6	44
507	Aurora and Arundel	"	"	6	50
508	Holly and St. Albans	"	"	6	34
509	Holly and Grotto	"	"	6	32
510	Holly and Avon	"	"	6	30
511	Martin and Ravoux	"	"	6	60
512	Martin and Summit Place	"	"	6	60
513	Central and St. Peter	"	"	4	60
514	Maria and Eighth	"	"	6	66
515	Bradley and Seventh	Low	"	6	42
516	Ashland and St. Albans	High	"	6	36
517	Ashland and Grotto	"	"	6	33
518	Ashland and Avon	"	"	6	34
519	Goodrich and Dousman	Low	"	12	33
520	Goodrich and Garfield	"	"	12	32
521	Goodrich and Western	"	"	12	32
522	Eichenwald and Sixth	High	"	6	41
523	Eichenwald and Seventh	"	"	6	42
524	Sinnen and Sixth	"	"	6	36
525	Hague and St. Albans	"	"	6	34
526	Hague and Grotto	"	"	6	32
527	Hague and Miller	"	"	6	31
528	Hague and Fisk	"	"	6	31
529	Selby and St. Albans	"	"	6	33
530	Reaney and Forest	"	"	6	51
531	Reaney and Cypress	"	"	6	56
532	Reaney and Earl	"	"	6	59
533	Irvine Park, north side	Low	"	4	53
534	Irvine Park, south side	"	"	4	43
535	Marshall and Victoria, northeast corner	High	"	12	34
536	Marshall and Fisk	"	"	12	38
537	Marshall and Miller	"	"	12	32
538	Marshall and Grotto	"	"	12	34
539	Earl and Minnehaha	"	"	12	62
540	Earl and Beech	"	"	12	63
541	Reaney and Frank	"	"	6	56
542	Laurel and Dale, northwest corner	"	"	6	35
543	Laurel and St. Albans	"	"	6	35
544	Laurel and Grotto	"	"	6	30
545	Laurel and Miller	"	"	6	30
546	Garfield and Harrison	Low	"	6	35
547	Bantil and Smith avenue	"	"	4	39
548	Carrol and Dale	High	"	6	26
549	Fuller and Marion	"	"	6	59
550	Fuller and Jay	"	"	6	59
551	Fuller and Farrington	"	"	6	58
552	Fuller and Virginia	"	"	6	55
553	Summit Place and St. Anthony	"	"	6	61
554	Cedar and Viola	"	"	6	37

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
555	Cedar and Como	High	Single	6	39
556	Viola and Jackson	"	"	6	41
557	Seventh and Frank, northwest corner	"	"	16	62
558	Seventh and Frank, northeast corner	"	"	16	62
559	Seventh and Duluth	"	"	16	60
560	Rice and Lafond	"	"	12	55
561	Rice and Arch	"	"	12	56
562	Rice and Pennsylvania	"	"	12	57
563	Rondo and Ravoux	"	"	6	63
564	Rondo and Summit Place	"	"	6	62
565	Williams and Olive	"	"	6	79
566	Olive and Pennsylvania	"	"	6	58
567	Rondo and Louis	"	"	6	60
568	Rondo and Farrington	"	"	6	58
569	Ninth and Smith avenue	Low	"	6	23
570	Franklin and Sixth	"	"	4	33
571	Rondo and Virginia	High	"	6	57
572	Mendota and Beech	"	"	12	54
573	Kittson and Fourth	Low	"	6	68
574	Valley and Warren	High	"	16	51
575	Robert and Valley	"	"	6	...
576	Mendota and Dawson	"	"	12	44
577	Mendota and Francis	"	"	12	40
578	Mendota and East Fourth	"	"	12	48
579	Mt. Airy and Broadway	"	"	6	56
580	Fourth and Neill	Low	"	12	67
581	Fourth and Willius	"	"	12	66
582	Fourth and Locust	"	"	12	66
583	Mendota and Freemont	High	"	12	50
584	Mendota and Conway	"	"	12	53
585	Euclid and Forrest	"	"	6	57
586	Euclid and Mendota	"	"	6	55
587	Third and Cypress	"	"	6	47
588	Third and Forrest	"	"	6	50
589	Third and Mendota	"	"	6	52
590	Third and Arcade	"	"	6	44
591	Hudson and Mendota	"	"	12	49
592	Mt. Airy and Linden	"	"	6	40
593	Mt. Airy and Warren	"	"	6	38
594	Maple and Euclid	"	"	6	48
595	Mt. Airy and Robert	"	"	6	...
596	Webster and Palace	Low	"	6	34
597	Maple and Ravine	High	"	6	50
598	Fourth and Broadway, northeast corner	Low	"	12	61
599	Maple and Conway	High	"	6	49
600	Viola and Brewster	"	"	6	38
601	Maple and Fourth	"	"	6	41
602	Viola and Park	"	"	6	56
603	Maple and Sixth	"	"	6	50
604	Margaret and Arcade	"	"	6	41
605	Margaret and Mendota	"	"	6	52
606	Ellen and Marion	"	"	6	58
607	Granite and Courtland	Low	"	6	4
608	Granite and Agate	"	"	6	6
609	Granite and Beaver	"	"	6	18
610	Margaret and Forrest	High	"	6	49
611	Ellen and Gaultier	"	"	6	58
612	Ellen and Farrington	"	"	6	57
613	Ellen and Virginia	"	"	6	57
614	Margaret and Cypress	"	"	6	46
615	Margaret and Earl	"	"	6	62
616	Mississippi and Case	Low	"	6	30
617	Mississippi and Jenks	"	"	6	28
618	Mississippi and Lawson	"	"	6	27
619	Mississippi and Cook	"	"	6	24
620	Mississippi and Magnolia	"	"	6	20
621	Mississippi and Jessamine	"	"	6	20
622	Robert and Thirteenth	"	"	6	29
623	Capitol and Buffalo	"	"	6	8
624	Capitol and Elk	"	"	6	10

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
625	Capitol and Courtland	Low	Single	6	12
626	University and McKubin	High	"	12	51
627	University and Kent	"	"	12	48
628	University and Dale	"	"	12	45
629	Central avenue north of Central Park	"	"	6	73
630	Central Drive East and Summit avenue	"	"	4	84
631	Genesee and Buffalo	Low	"	6	8
632	Ellen and Western	High	"	6	58
633	Ellen and Arundel	"	"	6	57
634	Ellen and McKubin	"	"	6	53
635	Ellen and Kent	"	"	6	49
636	Aurora and Virginia	"	"	6	56
637	Fourteenth and Robert	Low	"	6	30
638	Payne and Minnehaha	"	"	6	21
639	Reaney and Payne	"	"	6	17
640	Reaney and Edgerton	"	"	6	14
641	Eagle and Spring	"	"	6	68
642	Charles and Marion	High	"	6	58
643	Charles and Gaultier	"	"	6	57
644	Charles and Elfelt	"	"	6	56
645	Charles and Farrington	"	"	6	56
646	Charles and Virginia	"	"	6	56
647	Charles and Western	"	"	6	57
648	Virginia and Marshall	"	"	4	31
649	Decatur and Bedford	Low	"	6	27
650	Decatur and Edgerton	"	"	6	43
651	Beaumont and Preble	"	"	6	27
652	Oakland and Lincoln	High	"	6	47
653	Oakland and Floral	"	"	6	54
654	Oakland and Lawton	"	"	6	65
655	Oakland and Western	"	"	6	81
656	Dakota at end of Bridge	Low	"	6	64
657	Dakota and Fillmore	"	"	6	67
658	Dakota and Fairfield	"	"	6	68
659	Dakota and Indiana, southwest corner	"	"	6	69
660	Dakota and Chicago	"	"	6	68
661	Dakota and Channel	"	"	6	67
662	Toronto and Seventh	"	"	6	34
663	James and Seventh	"	"	6	34
664	Randolph and Seventh	"	"	6	33
665	Warsaw and Seventh	"	"	6	33
666	Audubon and Seventh	"	"	6	32
667	Summit and St. Albans	High	"	12	36
668	Carrol and Victoria	"	"	6	45
669	Carroll and Milton	"	"	6	39
670	Western and St. Clair	Low	"	6	37
671	Armstrong and Seventh	"	"	6	33
672	Bay and Seventh	"	"	6	32
673	Lee and Seventh	"	"	6	33
674	Jefferson and Oneida	"	"	12	35
675	Jefferson and Webster	"	"	12	34
676	Webster 300 feet north of Jefferson	"	"	6	30
677	Maria and Plum	High	"	6	73
678	Maria and Cherry	"	"	6	72
679	Robert 230 feet north of University	"	"	6	67
680	Grotto and Summit	"	"	6	32
681	Grotto and Portland	"	"	6	31
682	Hoffman and Cherry	"	"	6	77
683	Minnesota and Seventh, southeast corner	Low	"	6	44
684	Dayton and Victoria	High	"	6	32
685	Minnesota and Fourth, southeast corner	Low	Double	6	45
686	Selby and Grotto	High	Single	6	33
687	Selby and Mills	"	"	6	31
688	Selby and Fisk	"	"	6	32
689	Selby and Victoria	"	"	6	31
690	Hoffman and McLean	"	"	6	76
691	Hoffman and Lizzie	"	"	6	74
692	Hoffman and River	"	"	6	73
693	Portland and Avon	"	"	6	29
694	Margaret and Hope	"	"	6	43

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
695	Margaret and Greenbrier	High	Single	6	46
696	Hoffman and Clermont	"	"	6	72
697	Cherry 260 feet south of Hoffman	"	"	4	89
698	Ramsey and Western	"	"	6	55
699	Oakland and Ramsey	"	"	6	86
700	Fourth and Arcade	"	"	6	44
701	Western and Milwaukee Short Line	Low	"	6	41
702	Goodrich 750 feet east of Dale	High	"	6	37
703	Dale and Goodrich	"	"	12	37
704	Sixth 500 feet west of Maria	"	"	6	83
705	Ninth and Olive	Low	"	6	45
706	Ninth and Neill	"	"	4	43
707	Sixth and Hope	High	"	6	40
708	Martin and Kent	"	"	6	44
709	Jackson and Valley	"	"	6	48
710	Martin and McKubin	"	"	6	40
711	Greenbrier and North	"	"	12	53
712	Greenbrier and Maury	"	"	12	49
713	Sherburne and Park	"	"	6	51
714	Third and Jackson, northwest corner	Low	Double	6	53
715	St. Anthony and Dale	High	Single	6	30
716	St. Anthony and Kent	"	"	6	39
717	Arcade and Minnehaha	"	"	12	53
718	St. Anthony and McKubin	"	"	6	44
719	St Anthony and Arundel	"	"	6	46
720	St. Anthony and Virginia	"	"	6	53
721	St. Anthony and Farrington	"	"	6	57
722	Wabasha and Park	"	"	4	59
723	St. Anthony and Jay	"	"	6	61
724	St. Anthony and Louis	"	"	6	60
725	St. Anthony and Ravoux	"	"	6	61
726	Sherburne and Brewster	"	"	6	42
727	Brewster and University	"	"	6	48
728	Harrison and Western	Low	"	6	33
729	Martin and Virginia	High	"	6	54
730	Martin and Farrington	"	"	6	57
731	Pennsylvania and L'Orient	Low	"	6	33
732	Martin and Jay	High	"	6	59
733	Martin and Louis	"	"	6	59
734	Glencoe and L'Orient	Low	"	6	31
735	Glencoe and Columbia	"	"	6	27
736	Arcade and Wells	High	"	12	56
737	Arcade and York	"	"	12	50
738	Arcade and Sims	"	"	12	46
739	Arcade and Case	"	"	12	48
740	Arcade and Jenks	"	"	12	46
741	Arcade and Lawson	"	"	12	45
742	Arcade and Cook	"	"	12	42
743	Arcade and Magnolia	"	"	12	43
744	Arcade in front of Bohn M'f'g. Co.	"	"	12	60
745	Fauquier and Weide	"	"	6	58
746	Reaney and Weide	"	"	6	62
747	Reaney and Arcade	"	"	6	56
748	Edmund and Gaultier	"	"	6	57
749	Edmund and Elfelt	"	"	6	56
750	Edmund and Farrington	"	"	6	55
751	Edmund and Virginia	"	"	6	55
752	Edmund and Western	"	"	6	56
753	Como and Thomas	"	"	20	56
754	Como and Clagborn	"	"	20	58
755	Como and Lafond	"	"	20	59
756	Como and Gaultier	"	"	20	61
757	Aurora and Marion	"	"	6	59
758	Aurora and Jay	"	"	6	57
759	Aurora and Farrington	"	"	6	59
760	Preble and Minnehaha	Low	"	6	20
761	Payne and Beaumont	"	"	6	27
762	Thomas and Arundel	High	"	6	58
763	Thomas and McKubin	"	"	6	57
764	Conway and Arcade	"	"	6	49

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
765	Conway and Forrest	High	Single	6	51
766	Thomas and Kent	"	"	6	52
767	Thomas and Dale	"	"	6	47
768	Francis and Arcade	"	"	6	45
769	River and Maria	"	"	4	68
770	Duke and Jefferson	Low	"	6	37
771	Duke and Cascade	"	"	6	44
772	Blair and Arundel	High	"	6	56
773	Blair and McKubin	"	"	6	57
774	Blair and Kent	"	"	6	55
775	Blair and Dale	"	"	6	52
776	Iglehart and Dale	"	"	6	30
777	Fairfield and Starkey	Low	"	6	69
778	Fairfield and Cusner	"	"	6	68
779	Jackson and Winter	High	"	12	53
780	Jackson and Arch	"	"	12	56
781	Jackson and Pennsylvania	"	"	12	60
782	Fairfield and Hubert	Low	"	6	67
783	Fairfield and Robert	"	"	6	65
784	Fairfield and Eaton	"	"	6	66
785	Fairfield and Eva	"	"	6	67
786	Fairfield and Robertson	"	"	6	68
787	Fairfield and State	"	"	6	69
788	Como and Elfelt	High	"	20	60
789	Como and VanBuren	"	"	20	61
790	Como and Minnehaha	"	"	20	59
791	Como and Virginia	"	"	20	54
792	Como and Western	"	"	20	51
793	Indiana, between Dakota and Starkey	Low	"	12	69
794	Front and Dale, northeast corner	High	"	12	41
795	Front and Kent	"	"	12	51
796	Front and McKubin	"	"	12	58
797	Front and Arundel	"	"	12	53
798	Front and Western	"	"	12	45
799	Randolph and Bay	Low	"	12	31
800	Randolph and View	"	"	12	30
801	Front and Hand	High	"	12	42
802	Front and Farrington	"	"	12	44
803	Front and Matilda	"	"	12	47
804	Front and Gaultier	"	"	12	52
805	Fillmore and State	Low	"	6	69
806	Front and Marion	High	"	12	59
807	Front and Woodbridge	"	"	12	60
808	Front and Albermarle	"	"	12	60
809	Front and Rice	"	"	12	60
810	Lincoln and Victoria	"	"	6	31
811	Lincoln and Milton	"	"	6	34
812	Grand and Milton	"	"	6	33
813	Hague and Victoria	"	"	6	32
814	Dousman and Yankee	Low	"	6	38
815	Indiana and State	"	"	16	69
816	Indiana and Robertson	"	"	16	68
817	Indiana and Eva	"	"	16	68
818	Eaton and Indiana	"	"	16	68
819	Indiana and Robert	"	"	16	68
820	Indiana and Hubert	"	"	16	68
821	Indiana and Custer	"	"	16	68
822	Indiana and Starkey	"	"	16	69
823	Milwaukee freight yard	"	"	16	69
824	Summit and Minnesota	"	"	6	27
825	Dakota and Wood	"	"	6	64
826	Dakota and Colorado	"	"	6	57
827	Dakota and Delos	"	"	6	53
828	Isabel and State	"	"	12	53
829	Isabel and Greenwood	"	"	12	49
830	Isabel and Clinton	"	"	12	52
831	Isabel and Robert	"	"	12	53
832	Isabel and Livingston	"	"	12	54
833	Isabel and Starkey	"	"	12	54
834	Isabel and Dakota	"	"	12	49

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
835	Isabel and Goff	Low	Single	12	40
836	Isabel and Hall	"	"	12	22
837	Isabel and Stryker	"	"	12	20
838	Isabel and Winslow	"	"	12	21
839	Concord and Bancroft	"	"	12	54
840	Concord and Anita	"	"	12	53
841	Concord and Ada	"	"	12	50
842	Concord and State	"	"	12	49
843	Concord and Robie	"	"	12	50
844	Concord and Winnifred	"	"	12	53
845	Concord and Congress	"	"	12	54
846	Concord and Onega	"	"	12	56
847	John and Williams	"	"	6	35
848	Western and Superior	"	"	6	32
849	Robert and Fillmore	"	"	6	61
850	Congress and Robert	"	"	6	54
851	Congress and Clinton	"	"	6	52
852	Congress and Greenwood	"	"	6	50
853	Congress and State, northwest corner	"	"	6	50
854	Minnehaha and Edgerton	"	"	6	19
855	Robie and State	"	"	6	52
856	Robie and Ada	"	"	6	53
857	Robie and Anita	"	"	6	56
858	Robie and Bancroft	"	"	6	58
859	Winnifred and State	"	"	6	51
860	Winnifred and Ada	"	"	6	52
861	Winnifred and Anita	"	"	6	51
862	Winnifred and Bancroft	"	"	6	52
863	Congress and State, northeast corner	"	"	6	50
864	Congress and Ada	"	"	6	50
865	Congress and Anita	"	"	6	50
866	Congress and Dunedin Terrace	"	"	6	50
867	Congress and Bancroft	"	"	6	50
868	Hoffman and Short	High	"	6	76
869	Sixth and Washington	Low	"	6	33
870	Lee and Drake	"	"	6	43
871	Lee and Warsaw	"	"	6	39
872	Lee and Bay	"	"	6	35
873	Western and Banfil	"	"	6	31
874	Von Minden and Dousman	"	"	6	35
875	Von Minden and Ann	"	"	6	34
876	Minnehaha and Bradley	"	"	6	17
877	Fillmore and Starkey	"	"	6	68
878	Brewster and Como	High	"	6	41
879	Mt. Airy and L'Orient, northwest corner	"	"	6	80
880	Ellen and Dale	"	"	6	46
881	Fillmore and Custer	Low	"	6	66
882	Fillmore and Hubert	"	"	6	63
883	Fillmore and Eaton	"	"	6	62
884	Fillmore and Eva	"	"	6	65
885	Fillmore and Robertson	"	"	6	67
886	Woodward and Burr	"	"	4	44
887	Dakota and Congress	"	"	6	46
888	Dakota and Goff	"	"	6	41
889	Congress and Onega	"	"	6	49
890	Reaney and Walsh	High	"	6	70
891	Reaney and Greenbrier	"	"	6	72
892	Euclid and Cypress	"	"	6	48
893	Euclid and Earl	"	"	6	43
894	Livingston and Wood	Low	"	6	57
895	Colorado and Parnell	"	"	6	53
896	Colorado and Livingston	"	"	6	53
897	Colorado and South Robert	"	"	6	54
898	Colorado and Clinton	"	"	6	55
899	South Robert and Wood	"	"	6	57
900	Carroll and St. Albans	High	"	6	36
901	Carroll and Grotto	"	"	6	35
902	Carroll and Miller	"	"	6	38
903	Carroll and Fisk	"	"	6	43
904	Concord and Brown	Low	"	12	57

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
905	Concord and Andrew	Low	Single	12	60
906	Iglehart and St. Albans	High	"	6	36
907	Iglehart and Grotto	"	"	6	33
908	Iglehart and Miller	"	"	6	36
909	Iglehart and Fish	"	"	6	40
910	Iglehart and Victoria	"	"	6	39
911	Winnifred and Clinton	Low	"	6	52
912	Winnifred and Greenwood	"	"	6	51
913	Lafayette and Woodward	"	"	16	39
914	Isabel and Bidwell	"	"	12	22
915	Isabel and Bellows	"	"	12	21
916	Summit and Avon	High	"	12	30
917	Summit and Victoria	"	"	12	31
918	Winnifred and Brown	Low	"	6	50
919	Winnifred and Andrew	"	"	6	58
920	Ross and Frank	High	"	6	61
921	Ross and Duluth	"	"	6	59
922	Ross and Atlantic	"	"	6	55
923	Summit and Milton	"	"	12	34
924	Summit and Chatsworth	"	"	12	33
925	Delos and Greenwood	"	"	6	49
926	Delos and Clinton	"	"	6	51
927	Delos and South Robert	"	"	6	52
928	Western and Sturgis	"	"	6	34
929	Summit and Oxford	High	"	12	32
930	Summit and Lexington	"	"	12	33
931	Beech and Frank	"	"	6	50
932	Beech and Duluth	"	"	6	51
933	Delos and Starkey	Low	"	6	57
934	Delos and Livingston	"	"	6	54
935	Jackson and Fifth, northeast corner	"	Double	12	47
936	Jackson and Sixth, southeast corner	"	"	12	46
937	Jackson and Seventh, southeast corner	"	"	12	45
938	Jackson and Eighth, southeast corner	"	"	12	44
939	Jackson and Ninth, southeast corner	"	Single	12	39
940	Summit and Dunlap	High	"	12	29
941	Summit and Griggs	"	"	12	29
942	Summit and Milwaukee Railway	"	"	12	29
943	Beech and Forrest	"	"	6	52
944	South Robert and Chicago	Low	"	6	69
945	South Robert and Plato	"	"	6	70
946	South Robert 250 feet south of Plato	"	"	6	70
947	South Robert and Morrison	"	"	6	64
948	South Robert and railroad bridge	"	"	6	59
949	Marion and Thomas	High	"	6	58
950	Marion and Lafond	"	"	6	59
951	State and Chicago	Low	"	16	69
952	State and Plato	"	"	16	69
953	State and Florida	"	"	16	69
954	State and Utah	"	"	16	68
955	Van Buren and Western	High	"	6	58
956	Van Buren and Arundel	"	"	6	57
957	Isabel and Charlton	Low	"	6	29
958	West Seventh and Ramsey, northeast corner	"	Double	20	36
959	West Seventh and Walnut, northeast corner	"	"	20	41
960	West Seventh and Chestnut, southeast corner	"	"	20	38
961	Lafond and Western	High	Single	6	56
962	Lafond and Arundel	"	"	6	57
963	Lafond and Mackubin	"	"	6	57
964	Randolph and Fulton	Low	"	12	29
965	Randolph and Clifton	"	"	12	28
966	Randolph and Victoria	"	"	12	27
967	Randolph and Milton	"	"	12	26
968	Lafond and Kent	High	"	6	53
969	Lafond and Dale	"	"	6	50
970	Eagle and West Seventh	Low	Double	6	34
971	Edmund and Arundel	High	Single	6	58
972	Edmund and Mackubin	"	"	6	56
973	Edmund and Kent	"	"	6	51
974	Edmund and Dale	"	"	6	50

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single steamer.	Size of pipe.	Pressure at hydrant.
975	Case and Forest	High	Single	12	49
976	Case and Mendota	"	"	12	49
977	Colborne and St. Clair	Low	"	6	33
978	Case and Weide	High	"	12	36
979	Case and Walsh	"	"	12	38
980	Aurora and Dale	"	"	6	43
981	Fuller and Dale	"	"	6	42
982	Rondo and Dale	"	"	6	29
983	Payne and Case	"	"	6	66
984	Payne and Jenks	"	"	6	65
985	Payne and Lawson	"	"	6	64
986	Cook and Payne	"	"	6	61
987	Case and Greenbrier	"	"	12	50
988	Case and Edgerton	"	"	12	73
989	Martin and Dale	"	"	6	40
990	Colborne and Superior	Low	"	6	32
991	Colborne and Michigan	"	"	6	32
992	Case and Jessie	High	"	12	73
993	Case and Bradley	"	"	12	67
994	Case and Burr	"	"	12	66
995	Case and DeSoto	"	"	12	66
996	Case and Arkwright	"	"	12	60
997	Case and McMenomy	"	"	12	62
998	Burr and Jenks	"	"	6	66
999	Burr and York	"	"	6	63
1000	Burr and Whitall	"	"	6	60
1001	Burr and Omaha R'y	"	"	6	66
1002	Charles and Mackubin	"	"	6	55
1003	Charles and Kent	"	"	6	56
1004	Charles and Dale	"	"	6	48
1005	Charles and St. Albans	"	"	6	47
1006	Edmund and St. Albans	"	"	6	48
1007	Edmund and Grotto	"	"	6	50
1008	Lafond and St. Albans	"	"	6	48
1009	Lafond and Grotto	"	"	6	51
1010	Van Buren and Dale	"	"	6	54
1011	Minnehaha and Dale	"	"	6	54
1012	Payne and Omaha R'y	"	"	6	63
1013	Payne and Ross	"	"	6	65
1014	Payne and Whitall	"	"	6	63
1015	Payne and Wells	"	"	6	61
1016	York and Edgerton	"	"	6	75
1017	York and Payne	"	"	6	62
1018	York and Greenbrier	"	"	6	48
1019	Sims and Greenbrier	"	"	6	49
1020	Sims and Payne	"	"	6	64
1021	Tuscarora and West Seventh	Low	"	6	33
1022	Sims and Weide	High	"	6	35
1023	Sims and Walsh	"	"	6	41
1024	York and Weide	"	"	6	33
1025	York and Walsh	"	"	6	40
1026	University and St. Albans	"	"	20	48
1027	University and Grotto	"	"	20	47
1028	University and Avon	"	"	20	47
1029	University and Victoria	"	"	20	46
1030	York and Mendota	"	"	6	53
1031	York and Forest	"	"	6	57
1032	Forest and Wells	"	"	6	64
1033	Forest and Sims	"	"	6	51
1034	Beech and Cypress	"	"	6	56
1035	University and Milton	"	"	20	47
1036	University and Chatsworth	"	"	20	57
1037	University and Oxford	"	"	20	50
1038	University and Lexington	"	"	20	45
1039	Park avenue and Aurora	"	"	6	59
1040	Daly and James	Low	"	6	34
1041	Daly and Palace	"	"	6	32
1042	Daly and Jefferson	"	"	6	32
1043	Third and Pine	"	Double	12	68
1044	Third and Olive	"	"	12	69

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service.	Double or single service.	Size of pipe.	Pressure at hydrant.
1045	Third and John	Low	Double	12	69
1046	Laurel and Fisk	High	Single	6	31
1047	Summit Court	"	"	6	34
1048	Third and Broadway, northeast corner	Low	Double	12	67
1049	Third and Wacouta, northeast corner	"	"	12	64
1050	Sibley and Third, northeast corner	"	"	12	62
1051	Goodrich and St. Albans	High	Single	6	40
1052	Goodrich and Grotto	"	"	6	35
1053	Goodrich and Avon	"	"	6	33
1054	Goodrich and Victoria	"	"	6	32
1055	State and Morrison	Low	"	16	67
1056	State and Champlain	"	"	16	67
1057	State and Eaton	"	"	16	63
1058	State and Delos	"	"	16	57
1059	Mound and Hastings	High	"	12	62
1060	Mound, 300 feet south of Hastings	"	"	12	56
1061	Mound and McLean	"	"	12	49
1062	Mound and Lizzie	"	"	12	45
1063	Garfield and Lisbon	Low	"	6	34
1064	Fairmount and Dale	High	"	12	37
1065	Kenwood Park, north side	"	"	6	31
1066	Kenwood Park, south side	"	"	6	30
1067	Pine and Pennsylvania	"	"	6	54
1068	Fairmount and St. Albans	"	"	6	45
1069	Fairmount and Grotto	"	"	6	37
1070	Seventh and Wabasha, northeast corner	Low	Double	16	36
1071	Seventh and Cedar, northeast corner	"	"	16	42
1072	Seventh and Minnesota, northeast corner	"	"	16	44
1073	Seventh and Robert, northeast corner	"	"	16	45
1074	University and Griggs	High	Single	20	36
1075	University and Hamline	"	"	20	30
1076	University and Pascal	"	"	20	32
1077	University and Snelling	"	"	20	33
1078	University and Aldine	"	"	20	36
1079	University and Wheeler	"	"	20	39
1080	University and Fairview	"	"	20	41
1081	University and Prior, northeast corner	"	"	20	40
1082	Laura and University	"	"	6	42
1083	Laura and Waltham	"	"	6	34
1084	Feronia and Laura	"	"	6	39
1085	Feronia and Lynnhurst west	"	"	6	39
1086	Lynnhurst west and Oakley	"	"	6	44
1087	Lynnhurst and University	"	"	6	41
1088	Lynnhurst, east 300 feet north of Feronia	"	"	6	43
1089	Oakley and Prior	"	"	6	40
1090	Feronia and Fairview	"	"	6	41
1091	Waltham, 300 feet east of Prior	"	"	4	38
1092	Milwaukee avenue and Merriam Place	"	"	6	39
1093	Milwaukee avenue and Astoria	"	"	6	37
1094	St. Anthony avenue and Ferdinand	"	"	6	36
1095	St. Anthony avenue and Howell	"	"	6	37
1096	St. Anthony avenue and Prior	"	"	6	38
1097	St. Anthony avenue and Merriam Place	"	"	6	35
1098	St. Anthony avenue and Astoria	"	"	6	36
1099	St. Anthony avenue and Cleveland	"	"	6	38
1100	Rondo and Laura	"	"	6	32
1101	Rondo and Ferdinand	"	"	6	35
1102	Rondo and Howell	"	"	6	36
1103	Rondo and Prior	"	"	6	38
1104	Rondo and Terrace Park avenue	"	"	6	39
1105	Carroll and Fairview	"	"	6	33
1106	Carroll and Laura	"	"	6	35
1107	Carroll and Ferdinand	"	"	6	36
1108	Carroll and Howell	"	"	6	37
1109	Carroll and Prior	"	"	6	45
1110	Carroll and Moore	"	"	6	40
1111	Carroll and Wilder	"	"	6	39
1112	Carroll and Cleveland	"	"	6	38
1113	Iglehart and Cleveland	"	"	6	44
1114	Iglehart and Wilder	"	"	6	43

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
1115	Iglehart and Moore	High	Single	6	41
1116	Iglehart and Prior	"	"	6	37
1117	Iglehart and Howell	"	"	6	36
1118	Iglehart and Laura	"	"	6	34
1119	Wilder and Carroll	"	"	6	39
1120	Wilder and Rondo	"	"	6	37
1121	Fauquier and Frank	"	"	6	63
1122	Plum and Hoffman	"	"	6	76
1123	Fremont and Forest	"	"	6	47
1124	Prior and University, southeast corner	"	"	12	40
1125	Prior and Feronia	"	"	12	42
1126	Sibley and Fourth, southwest corner	Low	Double	6	54
1127	Prior and Marshal	High	Single	12	39
1128	Chicago and Starkey	Low	"	6	69
1129	Chicago and Custer	"	"	6	69
1130	Emma and railroad	"	"	4	40
1131	Robie and Brown	"	"	6	57
1132	Rondo and Kent	High	"	6	35
1133	Short and Maria	"	"	6	72
1134	Ravine, 325 feet west of Maria	"	"	4	63
1135	Cedar and Fourth, southeast corner	Low	Double	12	38
1136	Wabasha and Fourth, northeast corner	"	"	6	32
1137	Third and Exchange, south side	"	"	12	35
1138	Third and Franklin, south side	"	"	12	34
1139	Third and Washington, south side	"	"	12	34
1140	Third and Market	"	"	12	33
1141	Third and St. Peter, south side	"	"	12	33
1142	Cedar and Third, southeast corner	"	"	12	33
1143	Wabasha and Third, southwest corner	"	"	12	34
1144	Lafond and Claghorn	High	Single	6	58
1145	Claghorn and Lake	"	"	6	57
1146	Claghorn and Van Buren	"	"	6	60
1147	George and Livingston	Low	"	12	20
1148	George and Gorman	"	"	12	22
1149	George and Goff	"	"	12	23
1150	George and Hall	"	"	12	17
1151	George and Stryker	"	"	12	15
1152	Stryker and Robie	"	"	6	22
1153	Stryker and Winnifred	"	"	6	26
1154	Stryker and Congress	"	"	6	22
1155	Stryker and Delos	"	"	6	21
1156	Stryker and Colorado	"	"	6	20
1157	Stryker and Prospect Terrace	"	"	6	21
1158	Ellen and St. Albans	High	"	6	46
1159	Seventh and John, southeast corner	Low	Double	16	45
1160	Seventh and Olive, southeast corner	"	"	16	43
1161	Seventh and Pine, southeast corner	"	"	16	43
1162	Seventh and Broadway, northeast corner	"	"	16	44
1163	Seventh and Rosabel, northeast corner	"	"	16	44
1164	Seventh and Sibley, northeast corner	"	"	16	45
1165	Wacouta and Seventh, southeast corner	"	"	12	44
1166	Locust and Seventh, northeast corner	"	"	20	46
1167	Charles and Grotto	High	Single	6	49
1168	Charles and Avon	"	"	6	46
1169	Aurora and St. Albans	"	"	6	46
1170	Rondo and St. Albans	"	"	6	33
1171	Rondo and Grotto	"	"	6	38
1172	Rondo and Miller	"	"	6	43
1173	Rondo and Fisk	"	"	6	45
1174	Rondo and Victoria	"	"	6	46
1175	Indiana and Dakota, northwest corner	Low	"	12	69
1176	Indiana and Edward	"	"	12	69
1177	Indiana and Water	"	"	12	69
1178	Indiana and Hyde	"	"	12	69
1179	Indiana and Moses	"	"	12	69
1180	Indiana and Daniel	"	"	12	68
1181	Indiana and Ethel	"	"	12	63
1182	Holly and Victoria	High	"	6	32
1183	St. Anthony and St. Albans	"	"	6	33
1184	George and South Robert	Low	"	12	25

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
1185	George and Maurice	Low	Single	12	28
1186	State and George	"	"	16	48
1187	State and Dearborn	"	"	16	43
1188	State and Oakdale	"	"	16	40
1189	Oakdale and Prescott	"	"	16	28
1190	Oakdale and Midway	"	"	6	18
1191	Thomas and Claghorn	High	"	6	57
1192	Thomas and Gaultier	"	"	6	59
1193	Thomas and Elfelt	"	"	6	58
1194	Thomas and Farrington	"	"	6	56
1195	Thomas and Virginia	"	"	6	53
1196	Virginia and Lafond	"	"	4	57
1197	Farrington and Lafond	"	"	6	58
1198	Elfelt and Lafond	"	"	4	59
1199	Gaultier and Lafond	"	"	6	60
1200	Snelling and Edmund	"	"	16	32
1201	Snelling and Blair	"	"	16	30
1202	Snelling and Minnehaha	"	"	16	29
1203	Snelling and Capitol	"	"	16	28
1204	Snelling and Wesley	"	"	16	27
1205	Snelling and St. P., M. & M. R'y	"	"	16	24
1206	Walker and St. P., M. & M. R'y	"	"	4	24
1207	Taylor and Charlotte	"	"	6	25
1208	Taylor and Walker	"	"	6	26
1209	Taylor and Snelling	"	"	6	25
1210	Taylor and Asbury	"	"	6	24
1211	Taylor and Simpson	"	"	6	24
1212	Taylor and Pascal	"	"	6	25
1213	Taylor and Holton	"	"	6	26
1214	Hewitt, 140 feet east of Sheldon	"	"	6	25
1215	Hewitt and Sheldon	"	"	6	24
1216	Hewitt and Holton	"	"	6	27
1217	Hewitt and Pascal	"	"	6	26
1218	Hewitt and Simpson	"	"	6	24
1219	Hewitt and Asbury	"	"	6	25
1220	Hewitt and Snelling	"	"	6	26
1221	Hewitt and Walker	"	"	6	26
1222	Hewitt and Charlotte	"	"	6	27
1223	Hewitt and Aldine	"	"	6	29
1224	Wesley and Fry	"	"	6	30
1225	Wesley and Simpson	"	"	6	26
1226	Pascal and Wesley	"	"	6	26
1227	Pascal and Capitol	"	"	6	26
1228	Capitol and Simpson	"	"	6	27
1229	Capitol and Asbury	"	"	6	27
1230	Minnehaha and Asbury	"	"	12	28
1231	Minnehaha and Simpson	"	"	12	27
1232	Minnehaha and Pascal	"	"	12	27
1233	Minnehaha and Holton	"	"	12	26
1234	Minnehaha and Sheldon	"	"	12	26
1235	Eagle and Franklin	Low	"	6	59
1236	Maria and North	High	"	6	67
1237	North and Truxton	"	"	6	65
1238	Banfil and Richmond	Low	"	4	32
1239	North and Bates	High	"	6	63
1240	Bates and Maury	"	"	6	60
1241	Hope and Seventh, southwest corner	"	"	6	40
1242	Arcade and Seventh, southwest corner	"	"	6	46
1243	Arcade and Dawson	"	"	6	36
1244	Front and Como, northwest corner	"	"	12	41
1245	Front and Grotto	"	"	12	43
1246	Front and Avon	"	"	12	37
1247	Front and Louth	"	"	12	33
1248	Front and Ryde	"	"	12	33
1249	Front and Chatsworth	"	"	12	31
1250	Front and Argyle	"	"	12	30
1251	Front and Oxford	"	"	12	30
1252	Front and Churchill	"	"	12	32
1253	Front and Lexington	"	"	12	34
1254	Seventh and Newcomb	"	"	16	54

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
1255	Seventh and Atlantic	High	Single	16	54
1256	Seventh and Ocean	"	"	16	58
1257	Minnehaha and Duluth	"	"	6	57
1258	Minnehaha and Frank	"	"	6	51
1259	Dayton Place, 200 feet west of Maria	"	"	4	72
1260	Minnehaha and Seventh, northeast corner	"	"	6	55
1261	Minnehaha and Forest	"	"	6	56
1262	Minnehaha and Cypress	"	"	6	58
1263	Dale and St. P., M. & M. R'y	"	"	24	52
1264	Burgess and Dale	"	"	6	43
1265	Topping and Dale	"	"	6	44
1266	Case and Terrance	"	"	6	76
1267	Toronto and Palace	Low	"	6	33
1268	Toronto and Jefferson	"	"	6	33
1269	Lexington and N. P. R'y	High	"	16	28
1270	Third and Robert, northeast corner	Low	Double	12	47
1271	Third and Minnesota, northwest corner.	"	"	12	40
1272	Robert and Fourth, southeast corner	"	"	6	46
1273	Hastings and Maple	High	Single	12	58
1274	Maple and Plum	"	"	12	49
1275	Ellen and Grotto	"	"	6	48
1276	Ellen and Avon	"	"	6	58
1277	Ellen and Victoria	"	"	6	47
1278	Freemont and Arcade	"	"	6	39
1279	North Third and Arcade	"	"	6	44
1280	Conway and Cypress	"	"	6	46
1281	Sibley, between Fifth and Sixth	Low	Double	6	48
1282	Freemont and Cypress	High	Single	6	48
1283	Forest and Fourth	"	"	6	45
1284	Forest and Francis	"	"	6	46
1285	Columbia and Arch	Low	"	6	30
1286	Columbia and Pennsylvania	"	"	6	32
1287	Sims and Mendota	High	"	6	50
1288	Sims and Edgerton	"	"	6	74
1289	York and Jessie	"	"	6	73
1290	York and Bradley	"	"	6	64
1291	Fairmont and Avon	"	"	6	31
1292	Fairmont and Victoria	"	"	6	33
1293	Lisbon and Pleasant	Low	"	6	28
1294	Pleasant and Western	"	"	6	26
1295	University, under east end of bridge.	High	"	20	40
1296	University, center of bridge	"	"	20	40
1297	University and Cleveland	"	"	20	40
1298	University, under west end of bridge	"	"	20	40
1299	University and Vandalia	"	"	20	42
1300	University and Pillsburg	"	"	20	46
1301	University and Hersey	"	"	20	48
1302	University and LaSalle	"	"	20	46
1303	University and Clinton	"	"	20	43
1304	Cayuga and Mississippi	Low	"	6	30
1305	Cayuga, 300 feet west of Mississippi	"	"	6	28
1306	Raymond and University	High	"	16	42
1307	Raymond and Territorial road	"	"	16	39
1308	Raymond and Ellis	"	"	16	34
1309	Raymond and Bayless avenue east	"	"	6	42
1310	Raymond and Manvel	"	"	6	35
1311	Cudworth and Bayless ave	"	"	6	43
1312	Cudworth and Cromwell	"	"	6	43
1313	Cudworth and Eustis	"	"	6	38
1314	Pym and Bayless	"	"	12	42
1315	Pym and Cromwell	"	"	12	35
1316	Pym and Eustis	"	"	12	34
1317	Cromwell, 200 feet south of Manvel	"	"	6	40
1318	Manvel and Robbins	"	"	6	46
1319	Manvel and Bayless	"	"	6	41
1320	Bayless and Robbins	"	"	16	44
1321	Bayless, head of Bayless avenue east	"	"	16	41
1322	Hampden and Bradford	"	"	6	43
1323	Hampden, 400 feet east of Bradford	"	"	6	41
1324	Hampden and Hersey	"	"	6	42

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
1325	Sidney and Bradford	High	Single	6	39
1326	Sidney and Raymond	"	"	6	42
1327	Cayuga and Agate	Low	"	6	22
1328	Cayuga and Courtland	"	"	6	4
1329	Osceola and Pleasant	High	"	6	64
1330	Osceola, 400 feet west of Pleasant	"	"	6	49
1331	Osceola and Grotto	"	"	6	34
1332	Osceola and Avon	"	"	6	32
1333	Osceola and Victoria	"	"	6	34
1334	Victoria and St. Clair	"	"	16	39
1335	Magnolia and Edgerton	"	"	6	49
1336	Magnolia and Payne	"	"	6	53
1337	Magnolia and Greenbrier	"	"	6	40
1338	Snelling and Shield	"	"	16	31
1339	Snelling and St. Anthony	"	"	16	29
1340	Snelling and Carroll	"	"	16	30
1341	Carrol and Fry	"	"	6	29
1342	Payne and Jessamine	"	"	6	46
1343	Jessamine and Greenbrier	"	"	6	38
1344	Jessamine and Edgerton	"	"	6	43
1345	Goodhue and Duke	Low	"	6	33
1346	Payne and Geranium	High	"	6	43
1347	Payne and Rose	"	"	6	40
1348	Edgerton and Jenks	"	"	12	73
1349	Edgerton and Lawson	"	"	12	66
1350	Edgerton and Geranium	"	"	12	39
1351	Edgerton and Rose	"	"	12	37
1352	Jessamine and Jessie	"	"	6	31
1353	Jessamine and Bradley	"	"	6	32
1354	Cook and Edgerton	"	"	6	57
1355	Robert and Dearborn	Low	"	6	22
1356	Robert and Louisa	"	"	6	20
1357	Robert and Elizabeth	"	"	6	13
1358	Cook and Greenbrier	High	"	6	43
1359	Beaumont and Payne	Low	"	6	27
1360	Aurora and Victoria	High	"	6	45
1361	Aurora and Milton	"	"	6	48
1362	Fuller and Victoria	"	"	6	47
1363	Fuller and Milton	"	"	6	49
1364	Martin and Victoria	"	"	6	48
1365	Martin and Milton	"	"	6	49
1366	St. Anthony and Victoria	"	"	6	47
1367	St. Anthony and Milton	"	"	6	48
1368	Victoria and Marshall, northwest corner	"	"	16	34
1369	Cook and Walsh	"	"	6	46
1370	Cook and Weide	"	"	6	49
1371	Cook and Mendota	"	"	6	45
1372	Snelling and Marshall	"	"	16	32
1373	Snelling and Selby	"	"	16	26
1374	Snelling and Hague	"	"	16	27
1375	Snelling and Ashland	"	"	16	26
1376	Snelling and Summit	"	"	16	22
1377	Snelling and Grand	"	"	16	19
1378	Snelling and Lincoln	"	"	16	17
1379	Snelling and Goodrich	"	"	16	16
1380	Summit and McAllister	"	"	4	30
1381	Jessamine and Weide	"	"	6	47
1382	Jessamine and Arcade	"	"	6	45
1383	Jessamine and Mendota	"	"	6	44
1384	Jessamine and Forest	"	"	6	39
1385	Forest and Geranium	"	"	6	38
1386	Burr and Lawson	"	"	6	56
1387	Burr and Cook	"	"	6	43
1388	Selby and Milton	"	"	6	36
1389	Ashland and Milton	"	"	6	34
1390	Victoria and Ashland	"	"	16	31
1391	Dayton and Milton	"	"	6	37
1392	Clark and Whitall	"	"	6	66
1393	Clark and York	"	"	6	56
1394	Clark and Lookout Place	"	"	6	60

LIST OF HYDRANTS—*Continued.*

No.	Location.	Service	Double or single steamer	Size of pipe	Pressure at hydrant
1395	Clark and Case	High	Single	6	65
1396	Iglehart and Milton	"	"	6	36
1397	Iglehart and Chatsworth	"	"	6	39
1398	Iglehart and Oxford	"	"	6	48
1399	Tuscarora and Victoria	Low	"	6	29
1400	Whitall and Bradley	High	"	6	53
1401	Rondo and Milton	"	"	6	43
1402	Whitall and DeSoto	"	"	6	63
1403	DeSoto and York	"	"	6	61
1404	Mound and Burns	"	"	12	44
1405	Mavall alley, back of old No. 1 engine house	Low	"	4	32
1406	Burns and Clermont	High	"	6	42
1407	Cross and Lexington	"	"	6	40
1408	Workhouse north	"	"	6	38
1409	Workhouse south	"	"	6	38
1410	Burns and Earl	"	"	6	41
1411	Burns and Hester	"	"	6	48
1412	Burns and Griffith	"	"	6	53
1413	Van Slyke and Lexington	"	"	6	41
1414	Van Slyke and Horton	"	"	6	42
1415	Van Slyke and Argyle	"	"	6	38
1416	Argyle and Cross	"	"	6	39
1417	Tuscarora and Milton	Low	"	6	30
1418	Francis and Cypress	High	"	6	34
1419	Robbins and Raymond Place	"	"	6	35
1420	Bayless and Tainter	"	"	16	46
1421	Wheeler and Bayless	"	"	12	46
1422	Wheeler and Ada	"	"	12	39
1423	Wheeler and Everett Court	"	"	12	40
1424	Everett Court and St. P. M. & M. Ry	"	"	6	41
1425	Raymond and Kendrick	"	"	6	41
1426	Raymond and Blake	"	"	6	44
1427	Raymond and Atty Place	"	"	6	42
1428	Raymond and Langford ave	"	"	6	39
1429	Priscilla and Raymond	"	"	6	41
1430	Priscilla, 500 feet east of Raymond	"	"	6	43
1431	Pratt and Raymond	"	"	6	40
1432	Pratt and Alden	"	"	6	43
1433	Pratt and Gibbs	"	"	6	45
1434	Blake and Langford Place east	"	"	16	44
1435	Blake and Scudder	"	"	6	44
1436	Scudder and Atty Place	"	"	16	36
1437	Scudder and Gordon	"	"	6	36
1438	Langford and Scudder	"	"	16	36
1439	Langford and Knapp	"	"	16	35
1440	County Road and Dooley	"	"	16	25
1441	Dawson and Francis	"	"	6	46
1442	Crocus Place	"	"	4	38
1443	Delos and Hall	Low	"	6	20
1444	Langford P. P. W. and Bayless	High	"	12	45
1445	Langford P. P. W. and N. P. Ry	"	"	6	35
1446	Langford P. P. W, and Bayless	"	"	12	37
1447	Gordon and Langford P. P. W	"	"	12	36
1448	Gordon and Nourse	"	"	12	37
1449	Goff and Winnifred	Low	"	6	38
1450	Dooley and Chelmsford	High	"	6	23
1451	Winnifred and Hall	Low	"	6	31
1452	Robie and Andrew	"	"	6	32
1453	Iglehart and Fairview	High	"	6	31
1454	Hall and Congress	Low	"	6	27
1455	Marshall and Amos	High	"	12	33
1456	Midway and Mt. Hope	Low	"	6	18
1457	Midway and Harvard	"	"	6	21
1458	Midway and Woodbury	"	"	6	23
1459	Midway and Brown	"	"	6	38
1460	Prescott and Mt. Hope	"	"	6	22
1461	Prescott and Harvard	"	"	6	22
1462	Prescott and Woodbury	"	"	6	24
1463	Langford P. P. E. and Gordon	High	"	6	41
1464	Knapp and Langford P. P. E.	"	"	6	42

LIST OF HYDRANTS —*Concluded.*

No.		Service	Double or single steamer	Size of pipe	Pressure at hydrant
1465	Knapp and Langford P. P. W.	High	Single	6	42
1466	Knapp and Langford ave.	"	"	6	33
1467	Reaney and St. P. & D. Ry.	Low	"	6	18
1468	Armstrong and View	"	"	6	32
1469	Armstrong and Victoria	"	"	6	28
1470	Armstrong and Milton	"	"	6	27
1471	Armstrong and Chatsworth	"	"	6	26

Number of fire hydrants placed this year on low service	83
Number of fire hydrants placed this year on high service	254
Total number placed this year	337
Total number placed to date on low service	609
Total number placed to date on high service	862
Grand total	1,471

Of which 53 on low service are double steamers.

Only two of the old Holly hydrants remain in use, the balance are Mathews'.

LIST OF STREET SPRINKLING HYDRANTS.

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.
1	Sixth and Sibley	10 feet	Stand pipe.
2	Fifth and Wacouta	7½ "	"
3	Wacouta and Third	6 "	"
4	Fort and Third	5 "	"
5	Third and Jackson	5 "	"
6	Minnesota and Third	5 "	"
7	Fifth and Robert	6 "	"
8	Robert and Seventh	7 "	"
9	Wacouta and Seventh	6 "	"
10	Ninth and Cedar	7 "	"
11	Eighth and Broadway	6 "	"
12	John and Seventh	6 "	"
13	Walnut and Seventh	5 "	"
14	Kittson and Seventh	9 "	"
15	Ninth and St. Peter	5 "	"
16	Pine and Tenth	9 " east 30 " south	"
17	Pine and Grove	3 "	"
18	Waverly and Westminster	5 "	"
19	Leech and Seventh	In tunnel	"
20	Broadway and Fourth	7 feet	"
21	Cedar and Seventh	8 "	"
22	College and Wabasha	8 "	"
23	College and Tenth	8 " north 7 " east	"
24	Pleasant and Third	35 " south 7 " west	"
25	St. Peter and Third	In tunnel	"
26	Franklin and Fourth	In tunnel	"
27	Goodrich and Seventh	16 feet	"
28	Eleventh and Robert	4 "	"
29	Mt. Airy and Mississippi	6 "	"
30	Burr and Collins	11 "	"
31	Bradley and Woodward	7 "	"
32	Martin and Western	8 "	"
33	St. Albans and Portland	9 "	"
34	Portland and Summit	31 "	Holly
35	Laurel and Farrington	6 "	Stand pipe
36	St. Clair and Seventh	10½ "	"
37	Ramsey and Pleasant	31 " south 32 " east	"
38	Mackubin and Selby	28 "	"
39	Summit and Nelson	10 "	"
40	Mackubin and Summit	14 "	"
41	Dale and Marshall	8 "	"
42	Dale and Ashland	27 "	"
43	Dale and Grand	10 "	"
44	Marshall and Western	3 "	"
45	Rondo and Rice	9 "	"
46	Central and Wabasha	7½ "	"
47	Mackubin and University	8 "	"
48	University and Rice	8 " south 6 " west	"
49	Bates and Seventh	6 "	"
50	Hudson and Maria	7 "	"
51	Mendota and Fauquier	7 "	"
52	Oneida and Seventh	8 "	"
53	Third and Bates	8 "	"
54	Fifth and Maria	8 "	"
55	Chestnut and Franklin	8½ "	"
56	Twelfth and Jackson	35 "	"
57	Wacouta and Tenth	5 "	"
58	Arundel and Holly	29 " south 6 " east	"
59	Sherman and Smith	10 "	"
60	Grant and Aurora	27 "	"
61	Sixth and Wabasha	In tunnel	"
62	Eichenwald and Seventh	9 feet	"
63	Linnen and Seventh	9 "	"
64	Reaney and Seventh	8 "	"

LIST OF STREET SPRINKLING HYDRANTS—*Continued.*

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.
65	Earl and Seventh	6 feet	Stand pipe
66	Locust and Ninth	11 "	"
67	Walnut and Summit	36 "	Holly
68	Ninth and Fort	8 "	Stand pipe
69	Grove and Canada	5 "	"
70	Mendota and Seventh	9 "	"
71	Jackson and Fourteenth	8 "	"
72	John and Fourth	6 "	"
73	Maple and Conway	8 "	"
74	Farrington and Carroll	7 "	"
75	Topping and Como	.....	Holly
76	Viola and Grant	26 "	Stand pipe
77	Capitol and Western	.....	Holly
78	Acker and Mississippi	6 "	Stand pipe
79	Payne and Minnehaha	8 "	"
80	Fairfield and Dakota	8½ "	"
81	Audubon and Seventh	8 "	"
82	Rice and Como	8 "	"
83	Rice and St. P. M. & M. R'y	7 "	"
84	Williams and Olive	3 "	"
85	Olmsted and Olive	33 "	"
86	Neill and Fifth	12 " west 36 " south	"
87	Canada and University	23 "	"
88	Warren and Valley	4 " east 32 " west	"
89	Gaultier and University	7 " east 34 " south	"
90	Virginia and University	3 " east 33 " south	"
91	Farrington and Nelson	26 " west	"
92	Oakland and Floral	6 "	"
93	Mackubin and Iglehart	8 "	"
94	Acker and Elk	6 "	"
95	Summit and Cedar	7 " south 12 " west	"
96	Iglehart and St. Peter	28 "	"
97	Ninth and Jackson	29 " north	"
98	Sherman and Exchange	7 "	"
99	Summit Place and Iglehart	24 "	"
100	Summit Place and Martin	28 "	"
101	Jay and Fuller	8 "	"
102	Dale and University	8 "	"
103	St. Albans and Hague	7 "	"
104	Hoffman and Sixth	8 "	"
105	Hoffman and Cherry	10 "	"
106	River and Hoffman	10 "	"
107	University and Snelling	13 "	"
108	Carroll and Dale	5 "	"
109	Grand and Floral	30 "	"
110	Dale and Selby	9 "	"
111	Farrington and Ellen	7 "	"
112	Mackubin and Fuller	5 "	"
113	Mackubin and St. Anthony	9 "	"
114	Prairie and Garfield	10 "	"
115	Charles and Western	10 "	"
116	Marion and Charles	8 "	"
117	Granite and Mississippi	9 "	"
118	Sixth and Broadway	3 "	"
119	Minnehaha and Burr	23 " north 3 " west	"
120	Bedford and Decatur	30 "	"
121	Burr and Hopkins	6 "	"
122	Maple and Hudson	9 "	"
123	Richmond and Goodhue	10 "	"
124	Duke and Seventh	7 "	"
125	Earl and Minnehaha	7 "	"
126	Arcade and Reaney	7 "	"
127	Otsego and Lafayette	6 "	"
128	Cedar and Fifth	7 "	"

LIST OF STREET SPRINKLING HYDRANTS—*Concluded.*

No.	Location.	Measurement of Valve from Hydrant.	Name of Hydrant.
129	Grotto and Dayton	6 feet	Stand pipe
130	Grove and Monroe Place	5 "	"
131	Fauquier and Weide	9 "	"
132	Arundel and Rondo	9 "	"
133	Arcade and York	7 "	"
134	Broadway and Thirteenth	6 "	"
135	Robert and University	10 "	"
136	Como and Lake	10 "	"
137	Congress and Robert	8 "	"
238	Lee and Bay	9 "	"
139	Fillmore and Robert	7 "	"
140	Grotto and Grand	6 "	"
141	Robert and Wood	9 "	"
142	Anita and Concord	7 "	"
143	Roble and Concord	37 "	"
144	Reaney and Greenbrier	8 "	"
145	Victoria and Summit	43 " south	"
146	Dakota, south of channel	8 "	"
147	Isabel and Dakota	6 "	"
148	Chicago and Robert	8 "	"
149	Sherburne and Park	3 "	"
150	Virginia and Rondo	7 "	"
151	Front and Dale	5 "	"
152	Lafond and Western	8 "	"
153	Front and Rice	6 "	"
154	Kent and Laurel	4 "	"
155	Grotto and Holly	6 "	"
156	Western and Goodrich	8 "	"
157	Cook and Payne	7 "	"
158	York and Payne	6 "	"
159	University and Victoria	28 "	"
160	University and Lexington	12 "	"
161	Third and John	10 "	"
162	Tuscarora and Seventh	7 "	"
163	Elfelt and Edmund	8 "	"
164	Mackubin and Edmund	9 "	"
165	Dale and Martin	8 "	"
166	Whitall and Burr	31 "	"
167	Mississippi and Case	9 "	"
168	Mississippi and Jessamine	7 "	"
169	University and Hamline	10 "	"
170	Taylor and Snelling	9 "	"
171	Van Buren and Snelling	7 "	"
172	Prior and Oakley	31 "	"
173	St. Anthony and Terrace Park avenue	30 "	"
174	Iglehart and Prior	5 "	"
175	Jackson and Arch	31 "	"
176	Grotto and Carroll	9 "	"
177	Franklin and Sixth	4 "	"
178	Duluth and Seventh	8 "	"
179	Cypress and Euclid	8 "	"
180	State and Tennessee	31 " south 12 " east	"
181	Osceola and Pleasant	7 "	"
182	Raymond and Bayless Place	14 "	"
183	Raymond and University	7 "	"
184	University and Pillsbury	3 "	"
185	Raymond and Gordon	35 "	"
186	Lexington and Van Slyke	35 "	"

Number placed this year, 24.
Total placed to date, 186, of which four are Holly hydrants.

LOCATION OF VALVES (LOW SERVICE).

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	30-inch.	36-inch.
Alabama	East line of State			1						
Armstrong	East and west line of Seventh			2						
Armstrong	East and west line of Victoria			2						
Audubon	East line of Seventh			1						
Banfil	East and west line of Seventh		2							
Banfil	West line of Western		1							
Bay	South line of Seventh			1						
Beaumont	East line of De Soto			1						
Beaumont	East and west line of Bedford			2						
Beaumont	East line of De Soto			1						
Becker Place	South line of Lafayette			1						
Bedford	North line of North			1						
Bedford	South line of Minnehaha			1						
Bradley	North line of Partridge			1						
Bradley	North line of Beaumont		1							
Broadway	On hydrant in Milwaukee freight yard		1							
Broadway	N. and S. line of Third M. H. & B. O.	1	1			2				
Broadway	N. and S. line of Seventh M. & H.		1	2		1		1		
Broadway	Blow off at Ninth			1						
Broadway	South line of Grove			2				1		
Broadway	North line of Thirteenth		1							
Bruno	East line of Lafayette			1						
Buffalo	North line of Capitol			1						
Buffalo	South line of Granite			1						
Burr	South line of Hopkins			1						
Burr	South line of North			1						
Burr	North line of Collins			1						
Burr	North line of Beaumont			1						
Burr	South line of Fauquier			1						
Bancroft	North line of Concord			1						
Bancroft	North line of Robie			1						
Bancroft	North line of Winifred			1						
Canada	North line of Ninth			1						
Canada	North and south line of Grove			2						
Capitol	West line of Mississippi			1						
Cedar	North line of Third				1					
Cedar	Blow off at Sixth	1								
Cedar	North and south line of Seventh				2					
Cedar	Blow off at Eighth	1								
Cedar	South line of Tenth				1					
Cedar	North and south line of Twelfth			1			1			
Chestnut	North line of Franklin			1						
Chestnut	South line of Seventh			1						
Colborne	North line of Seventh			1						
Colborne	North line of St. Clair			1						
College	West line of Cedar			1						
College	West line of Wabasha			1						
College	West line of St. Peter			1						
College	West line of Tenth			1						
Collins	West line of Bedford			1						
Collins	East line of Lafayette			1						
Concord	East line of Bancroft				1					
Concord	East and west line of State				2					
Concord	South line of Isabel				1					
Congress	West line of Anita			1						
Congress	East and west line of State			2						
Congress	East line of Clinton			1						
Congress	East and west line of Concord			2						
Congress	East line of Dakota			1						
Chicago	East and west line of Starkey			2						
Colorado	West line of Clinton			1						
Colorado	East line of Livingston			1						
Clinton	South line of Congress			1						
Cayuga	West line of Mississippi			1						
Cayuga	East line of Agate			1						
Dakota	North line of Winifred			1						
Dakota	North and south line of Isabel			2						
Dakota	North line of Colorado			1						
Dakota	North line of Plato			1						
Dakota	North and south line of Indiana			2						

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	30-inch.	36-inch.
Decatur	East line of Bedford			1						
De Sota	South line of Collins			1						
Douglas	North and south line of Seventh			2						
Douglas	South line of Lisbon			1						
Duke	South line of Seventh			1						
Duke	South line of Jefferson			1						
Dousman	South line of Goodhue			1						
Dousman	North line of Von Minden			1						
Delos	West line of Clinton			1						
Delos	East line of Livingston			1						
Delos	East and west line of Starkey			2						
Delos	East line of Stryker			1						
Daly	North line of James			1						
Eagle	North line of Washington			1						
Eagle	South line of Exchange			1						
Eagle	South line of Seventh			1						
Eighth	112 feet east of Neill B. O	1								
Eighth	East and west line of Locust		2							
Eighth	East and west line of Broadway		4							
Eighth	West line of Sibley		1							
Eighth	East and west line of Jackson		2							
Eighth	East line of Minnesota		1							
Eighth	East and west line of Cedar		2							
Eighth	East line of Wabasha		1							
Eleventh	East line of Broadway		2							
Eleventh	West line of Jackson			1						
Eleventh	West line of Robert			1						
Eleventh	East line of Cedar			1						
Elm	East line of Exchange		1							
Exchange	East and west line of St. Peter		2							
Exchange	South line of Ninth		1							
Exchange	North line of Seventh		1							
Exchange	North and south line of Third		2							
Exchange	South line of Eagle		1							
Exchange	South line of Chestnut		1							
Exchange	North line of Sherman		1							
Exchange	Center of Wilkin		1							
Edgerton	North line of Minnehaha			1						
Fairfield	West line of State			1						
Fairfield	East line of Eva			1						
Fairfield	West line of Eaton			1						
Fairfield	West line of Hubert			1						
Fairfield	East and west line of Starkey			2						
Fairfield	West line of Dakota			1						
Fauquier	East line of DeSoto				1					
Fifth	West line of Neill			1						
Fifth	West line of Willius			1						
Fifth	East line of John			1						
Fifth	West line of Broadway		1							
Fifth	West line of Rosabel		1							
Fifth	East line of Sibley		1							
Fifth	East and west line of Jackson		2							
Fifth	East line of Minnesota		1							
Fifth	East and west line of Cedar		2							
Fifth	East and west line of Wabasha		1		1					
Fifth	West line of St. Peter		1							
Fifth	West line of Washington		1							
Fifth	East line of Seventh		1							
Fifth	East and west line of Fort		2							
Fifth	East line of Smith avenue		1							
Fort	North line of Third M. H. & B. O		2				1			
Fort	South line of Fifth on H		1							
Fort	South line of Sixth on H		1							
Fort	South line of Ninth, M. & H		1				1			
Fort	On H. between Ninth and Tenth		1							
Fourth	West line of Kittson				1					
Fourth	B. O. at Neill	1								
Fourth	West line of Locust				1					
Fourth	B. O. at John	1								
Fourth	East and west line of Broadway			1	1					

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	30-inch.	36-inch.
Fourth	West line of Rosabel			1						
Fourth	West line of Wacouta			1						
Fourth	East and west line of Jackson			2						
Fourth	East line of Minnesota			1						
Fourth	East and west line of Cedar			2						
Fourth	West line of Wabasha			1						
Fourth	West line of Market			1						
Fourth	East line of Franklin			1						
Fourteenth	East and west line of Canada			2						
Fourteenth	East line of Jackson			1						
Franklin	North line of Sherman		1							
Franklin	North line of Irvine Park drive		1							
Franklin	North line of Third		1							
Franklin	North line of Fourth		1							
Franklin	North and south line of Seventh		2							
Franklin	South line of Ninth		1							
Fillmore	West line of State			1						
Fillmore	East line of Eva			1						
Fillmore	East line of Robert			1						
Fillmore	West line of Hubert			1						
Fillmore	East and west line of Starkey			2						
Garfield	North line of Goodrich			1						
Genesee	West line of Mississippi			1						
Goodhue	East and west line of Seventh			2						
Goodhue	East line of Richmond			1						
Goodrich	East and west line of Seventh M. and B. O	1		1	1					
Grace	East line of Seventh			1						
Granite	West line of Mississippi			1						
Granite	East line of Agate			1						
Grove	West line of Lafayette			1						
Grove	West line and center of Mississippi M. H. and B. O		2				2			
Grove	West of Canada on H		1							
Grove	East line of Jackson						1			
Glencoe	West line of Mississippi			1						
Glencoe	East line of Columbia			1						
George	West line of State				1					
George	West line of Livingston				1					
George	East line of Stryker				1					
Harrison	West line of Douglas			1						
Harrison	West line of Garfield			1						
Hopkins	West line of Bradley			1						
Hopkins	East line of DeSoto			1						
Hall	South line of Congress			1						
Hall	South line of Isabel			1						
Indiana	West line of State					1				
Indiana	West line of Eaton					1				
Indiana	East and west line of Starkey				1	1				
Indiana	West line of Water				1					
Isabel	West line of State				1					
Isabel	East and west line of Starkey				2					
Isabel	West line of Winslow				1					
Jackson	North line of Levee and Levee M. and B.O	1	1							
Jackson	South line of Fourth				1					
Jackson	North and South line of Seventh				2					
Jackson	South line of Ninth				1					
Jackson	South line of Twelfth				1					
Jackson	North line of Grove			1						
Jackson	South line of Fourteenth			1						
Jefferson	West line of Seventh				1					
James	East and west line of Seventh			2						
Jessie	South line of Fauquier			1						
John	North line of Third			1						
John	North line of Fourth			1						
John	North line of Fifth			1						
John	North and south line of Seventh		1	1						
John	South line of Tenth		1							
John	North and south line of Grove		2							
John	North and south line of Olmsted			2						
Kittson	North line of Fourth			1						
Kittson	North line of Fifth			1						

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	30-inch.	36-inch.
Kittson	South line of Seventh			1						
Kentucky	East line of State			1						
Lafayette	North line of Woodward on H		1							
Lafayette	North and south line of Bruno M. & B. O	1	1			2				
Lafayette	Northern Pacific track B. O		1							
Lafayette	South line of Collins					1				
Lee avenue	East line of Seventh			1						
Lee avenue	West line of Warsaw			1						
Leech	North line of Goodrich			1						
Leech	North line of McBoal			1						
Leech	North line of Seventh			1						
Leech	15 feet south of north line of Ramsey			1						
Locust	North line of Seventh M and H			1			1			
L'Orient	North line of Thirteenth			1						
L'Orient	South line of Mt. Airy			1						
L'Orient	North line of Glencoe			1						
Livingston	North line of Delos			1						
Lisbon	West line of Douglas			1						
McBoal	West line of Wilkin			1						
McBoal	East line of Smith avenue			1						
McBoal	East and west line of Seventh			2						
Magnolia	Center of Mississippi			1						
Market	North line of Third		1							
Minnehaha	East line of Jessie			1						
Minnehaha	East line of Burr			1						
Minnehaha	East line of DeSoto			1						
Minnesota	North line of Third			1						
Minnesota	South line of Fifth			1						
Minnesota	North and south line of Seventh		1	1						
Minnesota	South line of Tenth		1							
Minnesota	South line of Eleventh		1							
Minnesota	South line of Twelfth		1							
Mississippi	North line of Grove M. and B. O			3					1	
Mississippi	North line of Nash			1						
Mississippi	North line of Glencoe			1						
Mississippi	South line of Minnehaha			2						
Mississippi	South of north abutment of M. R'y B. O			1						
Mississippi	South of Capitol			2					1	
Mississippi	South of Cayuga			2						
Mississippi	North of N. P. R'y, M. and B. O			3						
Mississippi	North of Magnolia			2					1	
Mt. Airy	West of Mississippi			1						
Mt. Ida	West line of DeSoto			1						
Michigan	West line of Seventh			1						
Mayall Alley	South line of Ninth		1							
Midway	West line of Woodbury			1						
Midway	East line of Oakland			1						
Nash	East and west line of Mississippi			4						
Neill	North line of Seventh		1							
Ninth	West line of Neill		1							
Ninth	East and west line of Locust		1	1						
Ninth	East and west line of Broadway			4						
Ninth	West line of Sibley			1						
Ninth	East and west line of Jackson			2						
Ninth	East line of Minnesota			1						
Ninth	East and west line of Cedar			2						
Ninth	East line of Wabasha		1							
Ninth	West line of St. Peter			1						
Ninth	East and west line of Fort			2						
Norris	West line of Canada		1							
Norris	East line of Temperance		1							
North	West line of Bradley			1						
Olive	South line of Seventh		1							
Olive	North and south line of Grove		2							
Olive	South line of Olmsted		1							
Olive	N. line of Olmsted, div. H. & L. service			1						
Oneida	South Line of Seventh			1						
Otsego	North line of Lafayette			1						
Oakdale	South line of Prescott			1						
Partridge	West line of Bradley		1							
Pine	North line of Ninth		1							

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	30-inch.	36-inch.
Pine	North line of Grove			1						
Pine	South line of Olmsted			1						
Pleasant	East and west line of Third			2						
Pleasant	East line of Walnut			1						
Pleasant	West line of Thompson			1						
Prince	East line of Broadway			1						
Payne	North line of Minnehaha			1						
Payne	South line of Fauquier			1						
Pennsylvania	East and west line of Mississippi			3						
Pennsylvania	West line of L'Orient			1						
Preble	North line of Beaumont			1						
Prescott	East line of Oakdale			1						
Ramsey	West line of Seventh					1				
Ramsey	West line of Thompson			1						
Ramsey	East line of Pleasant			1						
Randolph	East and west line of Seventh			1	1					
Randolph	East and west line of Victoria				2					
Richmond	South line of Seventh			1						
Right of way	North of Maryland, B. O			1						
Right of way	B. O. 300 feet south of Como and Phalen			1						
Right of way	S. line of Como and Phalen, M. & B. O.			1					1	
Right of way	B.O., 2,000 feet north of Como and Phalen			1						
Right of way	At pumping station, M. & B. O.			1					1	1
Robert	North line of Louisa			1						
Robert	South line of George			1						
Robert	North line of Concord			1						
Robert	North and south line of Isabel			2						
Robert	North line of Delos			1						
Robert	North line of Colorado			1						
Robert	South line of Plato			1						
Robert	South line of Chicago			1						
Robert	North and south line of Indiana			2						
Robert	North line of Fairfield			1						
Robert	North and south line of Third			2						
Robert	North line of Fourth			1						
Robert	North line of Fifth			1						
Robert	North and south line of Seventh			2						
Robert	North line of Eighth			1						
Robert	North line of Ninth			1						
Robert	South line of Eleventh			1						
Robert	North and south line of Twelfth			2						
Robert	South line of Fourteenth			1						
Reaney	East line of Edgerton			1						
Rosabel	South line of Fourth			1						
Rosabel	North line of Fifth			1						
Rosabel	South line of Seventh			1						
Robie	West line of Anita			1						
Robie	East line of State			1						
St. Clair	East line of Seventh			1						
St. Peter	North line of Third			1						
St. Peter	North line of Fourth			1						
St. Peter	South line of Sixth			1						
St. Peter	North and south line of Seventh			2						
St. Peter	North and south line of Tenth			2						
St. Peter	N. line of College, div. bet. H. & L service			1						
Seventh	West line of Kittson			1						
Seventh	East and west line of Locust			1		1				
Seventh	East and west line of Broadway					2				
Seventh	East and west line of Jackson					2				
Seventh	Center of Robert, B. O.	1								
Seventh	East line of Wabasha					1				
Seventh	East line of St. Peter				1					
Seventh	East line of Third				1					
Seventh	West line of Eagle					1	1			
Seventh	West line of Chestnut on H			1						
Seventh	At Walnut H. and B. O	1		2						
Seventh	N. and S. line of Ramsey, M. and H			1	1	1	1			
Seventh	West line of Leech				1					
Seventh	South line of McBoal					1				
Seventh	At Goodrich B. O	1								
Seventh	North line of Yankee					1				

LOCATION OF VALVES (LOW SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	30-inch.	36-inch.
Seventh	South line of Mil. R'y, M. and H		1			1				
Seventh	At Jefferson H. and B. O	1	1							
Seventh	South line of Palace					1				
Seventh	At James B. O	1								
Seventh	South line of Audubon					1				
Seventh	At Leech B. O	1								
Sherman	South line of Exchange			1						
Sherman	South line of Wilkin			1						
Sherman	North and south line of Seventh			2						
Sherman	South line of Pleasant			1						
Sibley	North and south line of Third		1	1						
Sibley	South line of Fifth			1						
Sibley	North and south line of Seventh		1	1						
Sibley	North line of Ninth		1							
Sibley	North line of Tenth		1							
Sibley	North line of Spruce		1							
Sixth	West line of Kittson		1							
Sixth	West line of Neill		1							
Sixth	West line of Willius		1							
Sixth	East line of John		1							
Sixth	East line of Olive		1							
Sixth	East and west line of Broadway		2							
Sixth	West line of Rosabel		1							
Sixth	East line of Sibley		1							
Sixth	East and west line of Jackson		2							
Sixth	East line of Robert		1							
Sixth	East line of Minnesota		1							
Sixth	East and west line of Cedar		2							
Sixth	East and west line of Wabasha		2							
Sixth	East line of Washington			1						
Sixth	South line of Seventh			1						
Sixth	East line of Exchange			1						
Sixth	East and west line of Fort			2						
Sixth	North line of Smith avenue			1						
Smith street	West line of Wilkin			1						
Smith street	East and west line of Seventh			2						
Smith street	West line of Smith avenue			1						
Smith avenue	North and south line of Seventh			2						
Smith avenue	North line of Smith street			1						
Smith avenue	North line of Ramsey			1						
Smith avenue	North line of Sherman			1						
Smith avenue	North line of Walnut			1						
Smith avenue	North and south line of Third			2						
Smith avenue	North line of Sixth			1						
Somerset	West line of John		1							
Somerset	East line of Pine		1							
State	North and south line of Concord					2				
State	North line of Isabel					1				
State	North line of Morrison					1				
State	South line of Indiana					1				
State	Center proposed levee					1				
Summit avenue	West line of Minnesota			1						
Stryker	North line of George			1						
Stryker	North line of Winifred			1						
Stryker	North and south line of Isabel			2						
Temperance	North line of Eighth		1							
Temperance	North line of Tenth		1							
Temperance	North and south line of Grove		2							
Tenth	West line of Locust			1						
Tenth	East and west line of Broadway		2	2						
Tenth	West line of Canada		1							
Tenth	East and west line of Jackson		2							
Tenth	West line of Robert			1						
Tenth	East and west line of Cedar, M. and H		1	1						
Tenth	Center of Wabasha B. O		1							
Tenth	West line of St. Peter						1			
Tenth	West of St. Peter on hydrant		1							
Tenth	West line of Fort			1						
Third	East and west line of Broadway				2					
Third	East line of Wacouta				1					
Third	East and west line of Jackson				2					

LOCATION OF VALVES (LOW SERVICE)—*Concluded.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	30-inch.	36-inch.
Third	West line of Minnesota				1					
Third	East line of St. Peter				1					
Third	East and west line of Washington				2					
Third	North and south line of Seventh			1	1					
Thirteenth	West line of Pine		1							
Thirteenth	East and west line of Mississippi			4						
Thirteenth	East and west line of Canada			2						
Thirteenth	East line of Jackson			1						
Thompson	North line of Ramsey			1						
Twelfth	East line of Broadway		2							
Twelfth	West line of Jackson, H. & B. O.		2							
Twelfth	West line of Minnesota, on H		1							
Twelfth	East line of Cedar, on H		1							
Toronto	North and south line of Seventh			2						
Tennesee	East line of State			1						
Tuscarora	East and west line of Seventh			2						
Tuscarora	West line of Victoria			1						
Von Minden	East line of Western			1						
Wacouta	North line of Third			1						
Wacouta	South line of Fifth			1						
Wacouta	South line of Sixth			1						
Wacouta	North and south line of Seventh				2					
Wacouta	North line of Eighth		1							
Wacouta	North line of Tenth		1							
Walnut	South line of Exchange		1							
Walnut	North and south line of Seventh		2							
Walnut	South line of Pleasant		1							
Warsaw	South line of Seventh			1						
Washington	North line of Chestnut		1							
Washington	North and south line of Third				2					
Washington	North line of Fourth		1							
Washington	North line of Fifth		1							
Waverly Place	West life of Lafayette			1						
Waverly Place	East line of John			1						
Webster	South line of Seventh			1						
Webster	North line of Jefferson			1						
Western	North and south line of Seventh			2						
Western	North line of Goodhue			1						
Western	North and south line of Goodrich			2						
Western	North line of Harrison			1						
Willius	North line of Fifth		1							
Willius	South line of Seventh		1							
Wilkin	North line of Smith			1						
Winifred	East line of Bancroft			1						
Winifred	West line of Anita			1						
Winifred	East and west line of State			2						
Winifred	East line of Clinton			1						
Winifred	East line of Concord			1						
Winifred	West line of Hall			1						
Woodward	West line of Bradley		1							
Wabasha	North and south line of Third			2						
Wabasha	South line of Fifth			1						
Wabasha	At Seventh			1						
Wabasha	North line of Ninth			1						
Wabasha	North and South line of Tenth			2						
Wabasha	North line of College			1						
Yankee	East line of Seventh		1							
Main line, old	Gate house at Lake Phalen							1		
Main line, old	South line of Omaha Ry., R. V. & B. O.			2						
Main line, old	Seventh, east line of Frank							1		
Main line, old	Seventh, east of Earl, M. & B. O.	1				1				
Main line, old	East of Cypress, B. O.	1								
Main line, old	East of Walsh, B. O.	1								
Main line, old	Payne and Ross					1				
Total		18	149	375	47	31	10	4	5	1

Number of valves laid this year **50**
Total number of valves on low service **640**

LOCATION OF VALVES (HIGH SERVICE).

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Arundel	North line of Summit		1						
Arundel	South line of Selby		1						
Arundel	North line of Dayton		1						
Arundel	North line of Marshall		1						
Ashland	West line of Western			1					
Ashland	East line of Mackubin			1					
Ashland	East and west line of Dale			2					
Ashland	East line of Grotto			1					
Ashland	East and west line of Victoria			2					
Aurora	West line of Rice			1					
Aurora	East line of Jay			1					
Aurora	West line of Farrington			1					
Aurora	East and west line of Western			2					
Aurora	East line of Mackubin			1					
Aurora	East and west line of Dale			2					
Aurora	West line of Victoria			1					
Arcade	North line of Dawson			1					
Arcade	North and south line of Seventh			1	1				
Arcade	North line of Minnehaha				1				
Arcade	South line of Omaha R'y				1				
Arcade	North line of Duluth R'y B. O.	1							
Arcade	North and south line of Case				2				
Arcade	South line of Magnolia				1				
Astoria	North line of St. Anthony			1					
Bates	North line of Conway				1				
Bates	South line of Seventh				1				
Beech	East and west line of Earl			2					
Beech	East line of Forest			1					
Beech	East line of Mendota			1					
Beech	South line of Seventh			1					
Blair	West line of Western			1					
Blair	East line of Mackubin			1					
Blair	East line of Dale			1					
Broadway	North line of Valley			1					
Brewster	North line of University			1					
Brewster	North line of Sherburne			1					
Burr	South line of York			1					
Burr	North and south line of Case			2					
Burr	South line of Lawson			1					
Burgess	East line of Dale			1					
Bayless avenue	South line of Cudworth					1			
Bayless avenue	Head of Bayless P. on H			1					
Bayless avenue	South line of Robbins M. and H			1		1			
Bayless avenue	North line of Tainter on H			1					
Bayless Place	East line of Bayless avenue		1						
Blake	East line of Scudder			1					
Blake	East line of Langford P. P. E. on H			1					
Canada	North line of University			1					
Canada	South line of Valley			1					
Capitol	West line of Western			1					
Capitol	West line of Pascal			1					
Capitol	East line of Snelling			1					
Capitol	West line of Simpson			1					
Carroll	West line of Rice			1					
Carroll	East line of Louis			1					
Carroll	West line of Farrington			1					
Carroll	East and west line of Western			2					
Carroll	East line of Mackubin			1					
Carroll	East and west line of Dale			2					
Carroll	East line of Grotto			1					
Carroll	West line of Miller			1					
Carroll	East and west line of Victoria			2					
Carroll	West line of Snelling			1					
Carroll	East and west line of Fairview			2					
Carroll	East and west line of Prior			2					
Conway	East and west line of Mendota			2					
Conway	East line of Maple			1					
Conway	East and west line of Bates			2					
Cedar	North and south line of Central			2					
Cedar	North and south line of University			2					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Cedar	South line of Viola			1					
Central avenue	East line of Cedar			1					
Central avenue	West line of Wabasha			1					
Central avenue	West line of St. Peter		1						
Central avenue	East line of Rice		1						
Central P. D. E. and W.	South of Central avenue		2						
Charles	West line of Rice			1					
Charles	West line of Gaultier			1					
Charles	East line of Western			1					
Charles	East and west line of Dale			2					
Charles	East line of Grotto			1					
Como avenue	East and west line of Rice						2		
Como avenue	South line of Thomas on H		1						
Como avenue	East line of Claghorn on H		1						
Como avenue	South line of Lafond on H		1						
Como avenue	East and west line of Gaultier M. and H		1				1		
Como avenue	East line of Elfelt on H		1						
Como avenue	North line of Van Buren on H		1						
Como avenue	North line of Minnehaha on H		1						
Como avenue	West line of Virginia on H		1						
Como avenue	East and west line of Western M. and H		1				2		
Como avenue	South line of Atwater B. O			1					
Como avenue	South line of Topping						1		
Como avenue	East line of Dale						1		
Cherry	East line of Hoffman			1					
Cook	East and west line of Arcade			2					
Cook	West line of Greenbrier			1					
Cook	East line of Edgerton			1					
Case	East and west line of Arcade				2				
Case	West line of Greenbrier				1				
Case	East and west line of Greenbrier				2				
Case	West line of DeSoto				1				
Case	West line of McNenomy			1					
Claghorn	South line of Lake			1					
Cromwell	North line of Pym			1					
Cudworth	Head of Atty on H			1					
Cudworth	South line of Langford					1			
Clark	North line of Whitall			1					
Clark	South line of Case			1					
Cross	East line of Lexington			1					
County Road	South line of Dooley on H			1					
Crocus Place	South line of Goodrich		1						
Crocus Place	South line of Fairmount		1						
Dale	South line of Goodrich				1				
Dale	North and South line of Summit					1			
Dale	At Ashland B. O	1							
Dale	North and south line of Marshall					2			
Dale	North and south line of University		1			1		1	
Dale	North line of Lafond		1						
Dale	North line of Minnehaha							1	
Dale	South line of Ireland		1						
Dale	North line of Manitoba R'y		1						
Dale	North and south line of Front M. and B. O.		1	1				2	
Dale	B. O. at Nigger Lake			1					
Dale	North line of Como and Phalen avenue							1	
Dale	B. O at German Lutheran cemetery			1					
Dale	Approach to Reservoir M. and B. O			2			2	1	
Dale	South line of McCarron Road M. and B. O.			1			1		
Dayton	West line of Summit				1				
Dayton	East and west line of Western				2				
Dayton	East line of Mackubin				1				
Dayton	East and west line of Dale			1	1				
Dayton	East line of Grotto			1					
Dayton	West line of Miller			1					
Dayton	East and west line of Victoria			2					
Duluth	North line of Seventh			1					
DeSoto	South line of York			1					
DeSoto	South line of Case			1					
Dawson	East and west line of Mendota			2					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Dooley	East line of County Road			1					
Earl	North line of Beech				1				
Earl	South line of Seventh				1				
Edmund	West line of Rice			1					
Edmund	West line of Gaultier			1					
Edmund	East and west line of Western			1					
Edmund	East line of Mackubin			1					
Edmund	East and west line of Dale			2					
Eichenwald	South line of Seventh			1					
Ellen	West line of Rice			1					
Ellen	West line of Gaultier			1					
Ellen	East and west line of Western			2					
Ellen	East line of Mackubin			1					
Ellen	East and west line of Dale			2					
Ellen	East line of Grotto			1					
Euclid	West line of Cypress			1					
Euclid	East and west line of Mendota			1					
Everett	South line of Wheeler			1					
Farrington	North line of Summit			1					
Farrington	North line of Laurel			1					
Farrington	North and south line of Dayton			2					
Farrington	North line of Nelson			1					
Farrington	South line of Carroll			1					
Farrington	South line of Rondo			1					
Farrington	North line of Thomas			1					
Fauquier	East and west line of Earl			2					
Fauquier	North and south line of Seventh			2					
Fauquier	East and west line of Arcade			2					
Fuller	West line of Rice			1					
Fuller	East line of Louis			1					
Fuller	West line of Farrington			1					
Fuller	East and west line of Western			2					
Fuller	East line of Mackubin			1					
Fuller	West and east line of Dale			2					
Fuller	West line of Victoria			1					
Fifth	East and west line of Bates			2					
Floral	South line of Summit		1						
Fourth	West line of Mendota			1					
Fourth	East line of Maple			1					
Fourth	East and west line of Bates			2					
Francis	West line of Mendota			1					
Front	East line of Gaultier				1				
Front	East and west line of Gaultier				2				
Front	East line of Mackubin				1				
Front	East and west line of Dale street main				2				
Front	East line of Grotto				1				
Front	East and west line of Victoria				2				
Front	East line of Chatsworth				1				
Front	East line of Lexington				1				
Forest	North line of Conway			1					
Forest	North line of Third			1					
Forest	North line of Fremont			1					
Forest	North line of Fourth			1					
Forest	North line of York			1					
Forest	South line of Case			1					
Forest	North line of Jessamine			1					
Fairmount	East of St. Albans 275 feet			1					
Fairmount	East line of Grotto			1					
Fairmount	East line of Victoria			1					
Feronia	West line of Laura			1					
Feronia	East line of Prior			1					
Fremont	East and west line of Mendota			2					
Grand	East line of Oakland			1					
Grand	East and west line of Dale			2					
Grand	East line of Grotto			1					
Grand	East and west line of Victoria			2					
Grove	B. O. at Trout Brook sewer	1							
Grove	East line of Monroe Place					1			
Grove	B. O. at Pine	1							
Grotto	South line of Grand			1					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Grotto	North and south line of Summit			2					
Grotto	South line of Holly			1					
Grotto	South line of Ashland			1					
Grotto	South line of Laurel			1					
Grotto	South line of Hague			1					
Grotto	South line of Selby			1					
Grotto	South line of Dayton			1					
Grotto	South line of Marshall			1					
Grotto	North line of Iglehart			1					
Grotto	North line of Carroll			1					
Goodrich	East and west line of Dale			2					
Goodrich	East line of Grotto			1					
Goodrich	East and west line of Victoria			2					
Greenbrier	North line of Seventh				1				
Gaultier	North line of Thomas			1					
Gordon	East and west line of Scudder			2					
Hoffman	South line of Seventh			1					
Hoffman	South line of McLean			1					
Hoffman	North line of River			1					
Holly	West line of Western			1					
Holly	East line of Mackubin			1					
Holly	East and west line of Dale			2					
Holly	East line of Grotto			1					
Holly	East line of Victoria			1					
Hague	West line of Dale			1					
Hague	East line of Grotto			1					
Hague	West line of Miller			1					
Hague	East line of Victoria			1					
Hudson	East and west line of Bates			2					
Hastings	West line of Maple				1				
Hastings	West line of Mound				1				
Hewitt	West line of Sheldon			1					
Hewitt	West line of Holton			1					
Hewitt	West line of Simpson			1					
Hewitt	East and west line of Snelling			2					
Hope	South line of Seventh			1					
Hampden	East line of Raymond			1					
Iglehart	West line of Wabasha			1					
Iglehart	East and west line of Rice			2					
Iglehart	West line of Summit Place			1					
Iglehart	West line of Louis			1					
Iglehart	West line of Farrington			1					
Iglehart	East and west line of Western			2					
Iglehart	East line of Mackubin			1					
Iglehart	East and west line of Dale			2					
Iglehart	East line of Grotto			1					
Iglehart	West line of Miller			1					
Iglehart	East and west line of Victoria			2					
Iglehart	East line of Chatsworth			1					
Iglehart	East and west line of Prior			2					
Jackson	North line of University			1					
Jackson	South line of Valley			1					
Jackson	North and south line of Como				1	1			
Jay	South line of Martin			1					
Jay	South line of Fuller			1					
Jessamine	East and west line of Arcade			2					
Jessamine	East and west line of Edgerton			2					
Kent	South line of Holly		1						
Kent	South line of Ashland		1						
Kent	South line of Laurel		1						
Kent	South line of Selby		1						
Kent	North line of Marshall		1						
Kent	North line of Iglehart		1						
Laura	North and south line of Waltham			2					
Laura	South line of University			1					
Laurel	West line of Nina			1					
Laurel	East line of Virginia			1					
Laurel	East and west line of Western			2					
Laurel	East line of Mackubin			1					
Laurel	East and west line of Dale			2					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Laurel	East line of Grotto			1					
Laurel	West line of Miller			1					
Lawton	South line of Summit			1					
Lincoln	West line of Oakland			1					
Lincoln	East and west line of Dale			2					
Lincoln	East line of Grotto			1					
Lincoln	East and west line of Victoria			2					
Louis	North line of Nelson			1					
Louis	South line of Carroll			1					
Louis	South line of Rondo			1					
Louis	South line of St. Anthony			1					
Louis	South line of Martin			1					
Louis	South line of Fuller			1					
Lafond	West line of Rice			1					
Lafond	East line of Como			1					
Lafond	West line of Western			1					
Lafond	East line of Mackubin			1					
Lafond	East and west line of Dale			2					
Lynnhurst W	North line of Feronia			1					
Lynnhurst E	East line of Lynnhurst W			1					
Lexington	North line of Front					1			
Lexington	South line of N. P. Ry. on H			1					
Lexington	South line of Van Slyke					1			
Langford P P E	East line of Bayless					1			
Langford P P E	South line of Knapp			1					
Langford P P W	West line of Bayless				1				
Langford P P W	200 feet south of Blake			1					
Langford P P W	North line of Gordon			1					
Langford ave	West line of Scudder, on H			1					
Langford ave	East line of Knapp, on H			1					
McCarron road	South of pumping station						1		
McCarron road	B. O. at Trout Brook			1					
McCarron road	South of McCarron lake, M. and B. O			1			1		
McCarron road	West line of Dale						1		
Mackubin	North line of Summit			1					
Mackubin	South line of Holly			1					
Mackubin	South line of Ashland			1					
Mackubin	South line of Laurel			1					
Mackubin	South line of Selby			1					
Mackubin	North and south line of Dayton			2					
Mackubin	North line of Marshall			1					
Mackubin	North line of Iglehart			1					
Mackubin	North line of Carroll			1					
Mackubin	North line of Rondo			1					
Mackubin	North line of St. Anthony			1					
Mackubin	North line of Martin			1					
Mackubin	South line of Aurora			1					
Mackubin	North and south line of University			2					
Maple	South line of Hudson			1					
Maple	North line of Euclid			1					
Maple	North line of Conway			1					
Maple	South line of Fourth			1					
Maple	North line of Fifth			1					
Maple	South line of Seventh			1					
Margaret	East line of Forest			1					
Margaret	East and west line of Mendota			2					
Margaret	North and south line of Seventh			2					
Margaret	East line of Greenbrier			1					
Martin	East and west line of Rice			2					
Martin	West line of Louis			1					
Martin	West line of Farrington			1					
Martin	East line of Western			2					
Martin	East line of Mackubin			1					
Martin	East and west line of Dale			2					
Martin	West line of Victoria			1					
Maria	North line of Plum			1					
Maria	North line of Hudson			1					
Maria	South line of Ravine			1					
Maria	North line of Conway			1					
Maria	South line of Fourth			1					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Maria	South line of Sixth			1					
Maria	North and South line of Seventh			2					
Marshall	West line of Western			1					
Marshall	East line of Mackubin			1					
Marshall	East and west line of Dale			1	1				
Marshall	West line of Grotto				1				
Marshall	East line of Victoria				1				
Marshall	East line of Prior				1				
Mendota	North line of Hudson				1				
Mendota	B. O. at Euclid	1							
Mendota	South line of Fourth				1				
Mendota	North line of Margaret M. and B. O	1			1				
Mendota	North and south line of Seventh M. and B. O	1		1	1				
Mendota	South line of Fauquier			1					
Mt. Airy	East line of Linden			1					
Mt. Airy	West line of Warren			1					
Marion	East and west line of Dale street Main				2				
Marion	North line of University			1					
Marion	North line of Ellen			1					
Marion	North line of Charles			1					
Marion	North line of Edmund			1					
Marion	North line of Thomas			1					
Minnehaha	East and west line of Earl			2					
Minnehaha	North and south line of Seventh			2					
Minnehaha	West line of Dale				1				
Minnehaha	East line of Pascal				1				
Minnehaha	East line of Snelling				1				
Mound	North line of Burns				1				
Manvel	East and west line of Bayless			2					
Magnolia	East line of Edgerton			1					
Nelson	West line of Summit			1					
Nelson	East line of Farrington			1					
Nelson	East line of Western			1					
Nina	North line of Summit			1					
North	West line of Truxton			1					
North	North line of Seventh			1					
Oakland	South line of Ramsey			1					
Oakland	East line of Lawton			1					
Oakland	South line of Lincoln			1					
Oakland	South line of Summit			1					
Oakley	East line of Prior			1					
Osceola	East line of Grotto			1					
Osceola	East line of Victoria			1					
Park Place	South of Summit		1						
Park avenue	North line of Martin			1					
Park avenue	North and south line of University			2					
Park avenue	North line of Sherburne			1					
Pine	North line of Grove					1			
Pine	North line of Thirteenth			1					
Pine	North line of Olmsted			1					
Pine	North and south line of Williams			2					
Portland	West line of Western			1					
Portland	East line of Mackubin			1					
Portland	East and west line of Dale			1					
Portland	East line of Grotto			1					
Pennsylvania	West line of Olive			1					
Plum	North line of Bates			1					
Prior	North line of Marshall				1				
Prior	North line of St. Anthony				1				
Prior	South line of University				1				
Payne	North line of Whitall			1					
Payne	North line of Wells			1					
Payne	North line of York			1					
Payne	North and south line of Case			2					
Payne	North line of Jenks			1					
Payne	North line of Cook			1					
Payne	North line of Magnolia			1					
Payne	North line of Jessamine			1					
Payne	North line of Geranium			1					
Payne	North line of Lawson			1					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Pascal	North line of Minnehaha			1					
Pascal	South line of Western			1					
Pascal	North line of Hewitt			1					
Pym	West line of Bayless				1				
Reservoir	On Reservoir grounds		1		1				2
Rice	North and south line of Summit M and B. O	1		1		1			
Rice	North line of St. Anthony					1			
Rice	North and south line of University M and H		1			1	1		
Rice	North line of Ellen on H		1						
Rice	North line of Charles on H		1						
Rice	North line of Edmund H and B. O		2						
Rice	North and south line Como				1		1		
Robert	South line of Aurora			1					
Robert	North and south line of University			2					
Robert	North line of Valley			1					
Rondo	West line of Rice			1					
Rondo	East line of Louis			1					
Rondo	West line of Farrington			1					
Rondo	East and west line of Western			2					
Rondo	East line of Mackubin			1					
Rondo	East and west line of Dale			2					
Rondo	East line of Grotto			1					
Rondo	West line of Miller			1					
Rondo	East and west line of Victoria			2					
Rondo	East and west line of Prior			2					
Reaney	East and west line of Earl			2					
Reaney	North and south line of Seventh			2					
Reaney	East and west line of Arcade			2					
Ramsey	East line of Summit			1					
Ross	West line of Duluth			1					
Ross	East and west line of Earl			2					
Ross	South line of Seventh			1					
Ravoux	South line of St. Anthony		1						
Ravoux	South line of Fuller		1						
Ravine	East and west line of Bates		2						
Raymond	North line of University M and H			1		1			
Raymond	South line of Territorial Road on H			1					
Raymond	North line of Ellis on H			1					
Raymond	East line of Bayless			1					
Raymond	South line of Manvel			1					
Raymond	North line of Wheeler			1					
Raymond	South line of Atty			1					
Raymond	South line of Pratt			1					
Robbins	East line of Bayless			1					
St. Anthony	West line of Rice			1					
St. Anthony	West line of Louis			1					
St. Anthony	West line of Farrington			1					
St. Anthony	East and west line of Western			2					
St. Anthony	East line of Mackubin			1					
St. Anthony	East and west line of Dale			2					
St. Anthony	West line of Victoria			1					
St. Anthony	East and west line of Prior			2					
St. Peter	South line of Iglehart			1					
St. Peter	South line of Tilton			1					
St. Peter	North and south line of Martin			2					
St. Peter	South line of University			1					
Selby	West line of Summit			1					
Selby	West line of Nina			1					
Selby	West line of Farrington			1					
Selby	East and west line of Western			2					
Selby	East line of Mackubin			1					
Selby	East and west line of Dale			2					
Selby	East line of Grotto			1					
Selby	West line of Miller			1					
Selby	East and west line of Victoria			2					
Seventh	East line of Duluth					1			
Seventh	East and west line of Earl M and B. O		1			1			
Seventh	South line of Fauquier					1			
Seventh	B. O. at Mendota	1							
Seventh	North line of Beech					1			
Seventh	West line of Maple M. and B. O	1				1			

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Seventh	West line of Hoffman M. and B. O.	1				1			
Sherburne	West line of Cedar			1					
Sherburne	East line of Park			1					
Sherburne	East line of Rice			1					
Sinnen	South line of Seventh			1					
Suction Main	Northeast of pumping station M. and B. O			1				2	
Summit avenue	East line of Wabasha			1					
Summit avenue	East line of St. Peter			1					
Summit avenue	East and west line of Rice M and B. O.	1		1	1				
Summit avenue	South line of Dayton			1					
Summit avenue	North line of Nina			1					
Summit avenue	East line of Western			1					
Summit avenue	East line of Mackubin				1				
Summit avenue	B. O. at Oakland	1							
Summit ave.	East and west line of Dale				2				
Summit ave.	East line of Grotto				1				
Summit ave.	East and west line of Victoria				2				
Summit ave.	East line of Chatsworth				1				
Summit ave.	East and west line of Lexington				2				
Summit ave.	East line of Griggs				1				
Summit ave.	West line of Snelling		1						
Summit Place	North line of Nelson			1					
Summit Place	South line of Carroll			1					
Summit Place	South line of Rondo			1					
Summit Place	South line of St. Anthony			1					
Summit Place	South line of Martin			1					
Summit Place	South line of Fuller			1					
St. Albans	South of Kenwood, P D.			1					
St. Albans	South line of Fairmount			1					
St. Albans	South line of Laurel		1						
St. Albans	North line of Marshall		1						
St. Albans	North line of Iglehart		1						
St. Albans	North line of Carroll		1						
Sims	East and west line of Arcade			2					
Sims	West line of Greenbrier			1					
Sims	East line of Edgerton			1					
Short	East line of Hoffman			1					
Snelling ave.	At Goodrich, on H.			1					
Snelling ave.	At Lincoln, on H.			1					
Snelling ave.	South line of Grand, on H.			1					
Snelling ave.	North and south line of Summit, M. and H.			1		2			
Snelling ave.	South line of Ashland, on H.			1					
Snelling ave.	South line of Hague, on H.			1					
Snelling ave	South line of Selby, on H.			1					
Snelling ave.	South line of Marshall, M. and H.			1		1			
Snelling ave.	North line of Milwaukee Short Line					1			
Snelling ave.	North line of Carroll, on H.			1					
Snelling ave.	North line of St. Anthony, on H.			1					
Snelling ave.	North line of Shields, on H.			1					
Snelling ave.	North and south line of University					2			
Snelling ave	At Edmund, on H.			1					
Snelling ave.	At Blair, on H.			1					
Snelling ave.	North and south line of Minnehaha, M. and H.			1		2			
Snelling ave.	North line of Capitol, on H.			1					
Snelling ave.	North line of Wesley, on H.			1					
Snelling ave.	South line of Manitoba Ry., on H.			1					
Simpson	South line of Western			1					
Simpson	South line of Hewitt			1					
Sixth	West line of Arcade			1					
Sixth	West line of Hope			1					
Sixth	West line of Maple			1					
Sixth	East and west line of Bates			2					
Sixth	West line of Maria			1					
Sidney	East line of Raymond			1					
Scudder	At Atty, on H.			1					
Scudder	South line of Langford, on H.					1			
Third	East and west line of Mendota			2					
Third	East line of Maple			1					
Third	East and west line of Bates			2					
Third	South line of Summit			1					

LOCATION OF VALVES (HIGH SERVICE)—*Continued.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Third st. north	North line of east Third			1					
Thirteenth.	B. O. at Broadway north	1							
Tilton	East line of St. Peter			1					
Tilton	East line of Rice			1					
Thomas	West line of Como			1					
Thomas	West line of Gaultier			1					
Thomas	East line of Farrington			1					
Thomas	East and west line of Western			1					
Thomas	East line of Mackubin			1					
Thomas	East line of Dale			1					
Topping	West line of Como			1					
Topping	East line of Dale			1					
Taylor.	West line of Pascal			1					
Taylor	West line of Simpson			1					
Taylor	East and west line of Snelling			2					
University	South line of Valley					1			
University	B. O. 275 feet west of Canada	1							
University	West line of Robert					1			
University	East and west line of Rice, M. and B. O.	1			1	1			
University	West line of Gaultier				1				
University	East and west line of Western				2				
University	East line of Mackubin				1				
University	East and west line of Dale				1		1		
University	East line of St. Albans, on H.		1						
University	East line of Grotto, on H.		1						
University	East line of Avon, on H.		1						
University	East and west line of Victoria, M. and H.		1				2		
University	East line of Milton, on H.		1						
University	East line of Chatsworth, on H.		1						
University	East line of Oxford, on H		1						
University	East and west line of Lexington, M. and H.		1				2		
University	East line of Dunlap, on H. B.			1					
University	East line of Griggs, on H.		1						
University	East line of Syndicate, on H. B.			1					
University	East and west line of Hamline, M. and H.		1				2		
University	East line of Albert, on H. B.			1					
University	East line of Pascal, on H.		1						
University	East line of Simpson, on H. B.			1					
University	East line of Asbury, on H. B.			1					
University	East and west line of Snelling, M. and H.		1				2		
University	East line of Fry, on H. B.		1						
University	East line of Aldine, on H.		1						
University	East line of Wheeler, on H.		1						
University	East and west line of Fairview, M. and H.		1				2		
University	East and west line of Prior, on M. and H.		1				1		
University	East end of Transfer bridge, on H.			1					
University	Centre of Transfer bridge, on H.			1					
University	West line of Cleveland, M. and H.			1			1		
University	West line of Montgomery, on H.			1					
University	West line of Vandalia, on H.			1					
University	West line of Pillsbury, on H.			1					
University	West line of Hersey, on H.			1					
University	West line of LaSalle, on H			1					
University	West line of Clinton, on H.			1					
University	East line of Raymond						1		
Valley	West line of Broadway					1			
Viola	West line of Cedar			1					
Viola	East line of Park			1					
Viola	East line of Rice			1					
Virginia	North line of Summit			1					
Virginia	South line of Selby			1					
Virginia	North and South line of Dayton			2					
Virginia	North line of Nelson		1						
Virginia	South line of Iglehart		1						
Virginia	North line of Thomas		1						
Victoria	North line of St. Clair, M. and H.			1		1			
Victoria	North and south line of Summit					2			
Victoria	North line of Ashland, on H.			1					
Victoria	North and south line of Marshall, M. and H.			1		2			
Victoria	South line of University					1			

LOCATION OF VALVES (HIGH SERVICE) —*Concluded.*

Street.	Location.	3-inch.	4-inch.	6-inch.	12-inch.	16-inch.	20-inch.	24-inch.	36-inch.
Van Buren	West line of Western			1					
Van Buren	West line of Dale			1					
Van Slyke	West line of Argyle			1					
Van Slyke	West line of Horton			1					
Van Slyke	West line of Lexington			1					
Wabasha	North line of Iglehart			1					
Wabasha	North and south line of Central		1	1					
Western	South line of Holly, M. and B. O.	2			1				
Western	North and south line of Dayton				1	1			
Western	North line of Rondo, M. and B. O.	1				1			
Western	North line of University					1			
Western	B. O. at Ellen	1							
Western	North line of Lafond					1			
Western	South line of Como					1			
Williams	West line of Olive			1					
Williams	East line of Mississippi			2					
Waltham	East line of Prior		1						
Wilder	North line of Iglehart			1					
Wilder	North line of Carroll			1					
Wilder	South line of St. Anthony			1					
Whitall	West line of Earl			1					
Walker	North line of Hewitt		1						
Wesley	West line of Pascal		1						
Wesley	West line of Snelling			1					
Workhouse	West line of Lexington			1					
Wheeler	East line ofBayless				1				
York	East and west line of Arcade			2					
York	West line of Greenbrier			1					
York	East and west line of Edgerton			2					
York	East line of Bradley			1					
Total		20	73	582	78	47	29	8	2

Number of valves laid this year on high service 230
Total number of valves on high service 839
Total number of valves laid on high and low service 1479
Reference—M., main; B. O., blow-off; H., on Hydrant; H. B., on hydrant branch.

INVENTORY OF STOCK AND TOOLS DECEMBER 1, 1889.

12 feet 36 inch pipe.
12 " 30 " "
204 " 24 " "
152 " 20 " "
636 " 16 " "
60 " 12 " "
1,656 " 6 " "
31 " 3 " "
84 " 30 inch curvature pipe.
36 " 16 " " "
120 " 12 " " "
72 " 6 " " "
108 " 4 " " "
1 12 inch quarter bend.
5 6 " " "
1 36 " sleeve.
1 30 " "
3 24 " "
2 20 " "
2 16 " "
9 12 " "
39 6 " "
10 4 " "
1 24 " plugs.
2 20 " "
7 16 " "
1 12 " "
46 6 " "
27 4 " "
1 30x6 inch 4-way branch.
1 24x12 " 4-way "
1 24x6 " 4-way "
2 24x4 " 3-way "
1 20x6 " 4-way "
15 16x6 " 4-way "
6 16x6 " 3-way "
1 16x3 " 3-way "
14 12x6 " 4-way "
5 12x6 " 3-way "
1 12x3 " 3-way "
8 6x6 " 4-way "
15 6x6 " 3-way "
7 6x4 " 4-way "
15 6x4 " 3-way "
7 6x3 " 3-way "
4 4x4 " 4-way "
5 4x4 " 3-way "
1 20x24 " Y
1 16x20 " Y
2 Reducers from 20 to 12 inch.
4 Reducers from 12 to 6 inch.
2 Reducers from 6 to 4 inch.
327 Pounds of pig lead.
430 Pounds of hemp packing.
5 Cans of blasting powder.

GATES AND GATE DUPLICATES.

1 20 inch gate.
2 16 " "
1 12 " "
3 6 " "
1 4 " "
15 3 " "
1 2½ " "
93 2 " stop and waste valves.
163 2 " valves.
10 1½ " stop and waste valves.
7 1¼ " valves.
11 Gate wrenches.
118 Iron gate boxes complete.

MISCELLANEOUS LOT OF GATE DUPLICATES.

10 Mathew hydrants.
6 Casings for Mathew hydrants.
2 Hydrant pots, extra.
10 Cases for sprinkling pipes.
16 Hydrant wrenches.
2 Boilers for thawing hydrants.

MISCELLANEOUS LOT OF HYDRANT DUPLICATES.

1 Kit of tools for repairing hydrants.
5 Tool boxes.
7 Lead ladles.
7 Lead pots.
6 Lead furnaces.
6 Derricks.
2 Ragnall and land diaphragm pumps.
265 Shovels.
250 Picks.
15 Sledge hammers.
10 Striking hammers.
9 Crowbars.
16 Rock drills.
5 Plug and feather drills.
7 Blasting chains.
249 Blasting timbers.
12 Set caulking tools.
1 Pipe cutting machine.
4 Spirit levels.
5 Dirt rammers.
12 Saws.
6 Axes.

CONNECTION STOCK AND TOOLS.

300 feet ½ to 2 inch galvanized pipe.
2 Scales.
1 Lot of pipe fittings from ½ to 2 inch.
19,069 Pounds ½ to 1½ inch lead pipe, extra strong.
3 Kits plumbing tools complete.
3 Muller tapping machines, complete.
218 Bingham & Morgan stop boxes.
200 Corporation cocks from ⅜ to 1 inch.
270 Stop and waste.
231 Pounds of solder.
7 Stop cock rods for turning on and shutting off water.
4 Valve rods for turning on and shutting off water.

STABLE AND MISCELLANEOUS ACCOUNT.

4 Horses
2 Large pipe trucks for hauling from 12 to 36-in. pipe.
1 Light truck.
1 Light wagon.
2 Buggies.
1 Light bob sleigh.
2 Cutters.
4 Sets single harness.
7 Horse blankets.
1 Buffalo robe.
A quantity of feed for horses.
2 Forks.
1 Anvil.
20 Jackscrews.
1 Farmer's kettle.
1 Box wood stove.
26 Pair rubber boots.
46 Lanterns.
225 Pieces of sheeting 8 feet long.
11 " " " 6x8-14 feet long.
49 " " " 2x10-16 " "
2 " " " 6x8-16 " "
8 Wheelbarrows.
18 Meters from ⅛ to 4 in.

RESERVOIR.

6 Dirt scrapers.
1 Lawn mower.
2 Sections 2-in. hose.
6 Water buckets.
1 Fork.
1 Garden rake.
2 Gate wrenches.

ST. PAUL WATER WORKS PUMPING STATION,
December 1, 1889.

To the Hon. Board of Water Commissioners of the City of St. Paul, Minn:

GENTLEMEN: I herewith submit my fifth annual report of the operation of these works, being for the year ending November 30, 1889.

During the past five years pumping engine and boiler have worked in a highly satisfactory manner up to the present time, and have required but the ordinary repair and packing. Soft coal was used the past 7 months with very good results. The following tabulated record herewith shows the amount of water used and coal consumed during the year 1889:

Respectfully submitted,
MARTIN FEIST, Engineer.

ST. PAUL WATER WORKS PUMPING STATION, ENGINEER'S REPORT.

FOR THE YEAR ENDING NOVEMBER 30, 1889.

The following tabulated record exhibits in detail the operation of these works.

Months.	Number of Hours Pumping.		Number of Revolutions.		Number of Gallons Pumped.		Average No. of gallons pumped per day.	Pounds of Coal.		Average No. of pounds of coal used per day.		Pressure on pump.
	Engine No. 1.	Engine No. 2.	Engine No. 1.	Engine No. 2.	Engine No. 1.	Engine No. 2.		Engine No. 1.	Engine No. 2.			
December, 1888	706½	.....	1,286,200	.....	41,158,400	.....	1,327,687	85,070	.....	2,728	Hard Coal.	64
January, 1889	721	.....	1,309,400	.....	41,900,800	.....	1,351,638	89,303	.....	2,865	Hard Coal.	64
February	668	.....	1,199,700	.....	38,390,400	.....	1,371,085	97,824	.....	3,493	Hard Coal.	64
March	703	.....	1,328,100	.....	42,499,200	.....	1,370,942	86,870	.....	2,783	Hard Coal.	64
April	363	165½	710,500	339,600	22,736,000	23,092,800	1,526,500	43,620	52,316	3,198	Hard Coal.	64
May	231	255½	456,100	454,200	14,595,200	30,740,600	1,889,333	39,096	81,539	5,026	Soft Coal.	64
June	469¾	253¾	1,216,700	573,700	38,934,000	39,011,600	2,598,200	83,275	84,485	5,592	Soft Coal.	64
July	303¼	413	814,900	772,000	26,076,800	52,436,000	2,534,600	50,745	100,625	4,883	Soft Coal.	64
August	288½	384¾	781,900	753,700	25,020,800	51,251,600	2,460,400	49,661	98,945	4,793	Soft Coal.	64
September	163½	346¼	420,400	776,300	13,452,800	52,380,200	2,194,400	26,738	105,683	4,416	Soft Coal.	64
October	190	277	460,800	627,600	14,745,600	42,676,800	1,825,335	31,169	85,432	3,761	Soft Coal.	64
November	720	.....	1,478,700	.....	47,318,400	.....	1,577,280	115,567	.....	3,852	Soft Coal.	64
Total	5,527½	2,096¼	11,463,400	4,291,100	366,808,800	291,649,600	1,803,995	799,938	609,025	3,860		64

Total number of gallons pumped during the year, 658,458,400; daily average, 1,803,995 gallons.
Total amount of coal consumed during the year, 704 tons; daily average, 3,860 pounds.
NOTE—Coal for heating engine and engineer house and changing boiler is included in above statement.

MARTIN FEIST, Engineer.

THE QUANTITY OF WATER PUMPED FOR THE PAST FIVE YEARS.

Year.	Total No. of gallons.	Daily Average.
1885	225,588,912	642,404
1886	309,363,560	847,571
1887	333,954,800	914,944
1888	484,507,680	1,327,418
1889	658,458,400	1,803,995

INVENTORY OF TOOLS AND STOCK AT THE PUMPING STATION.

1 Vise.
2 Sets screw dies and taps from ¼ to 2 inches.
1 Set bolt dies and taps from ¼ to 1 inch.
2 Pipe cutters.
1 Pair pipe tongs.
1 24-inch pipe wrench.
1 12-inch pipe wrench.
1 20-inch Coe's wrench.
1 14-inch Coe's wrench.
1 6-inch Coe's wrench.
1 Portable blacksmith's forge.
1 Anvil.
2 Pair blacksmith's tongs.
1 Sledge hammer.
1 Hand hammer.
1 Soft hammer.
4 Files.
1 Saw.
1 Axe.
1 Hatchet.
1 1½-ton chain block.
35 Feet 1-inch rope.
50 Feet 1¼-inch linen hose.
200 Feet ¾-inch garden hose.
18 Feet 1-inch steam hose.
4 Oil tanks.
2 1-quart oil cans.
1 2-quart oil can.
2 hand oilers.
1 Quart measurer.
75 feet ¾-inch rope and block.
1 12-inch level.
1 Steel coal barrow.
1 Sand barrow.
2 Coal scoops.
1 Coal hammer.
1 Fairbanks 6-ton scale.
1 Fairbanks 1-ton scale.
1 Grindstone.
4 Large lanterns.
4 Small lanterns.
1 Clock.
1 Writing desk.
4 Chairs.
2 Ladders.
1 Step ladder.
1 Good cupboard.
1 Clothing cupboard.
1 Oil and waste cupboard.
1 Work bench.
6 Spittoons.
1 Ratchet brace and bit.
2 Eight inches long jack screws.
1 Draw knife.
262 Ton Yough. coal.
1 Cord slabs.
5 Gallons cylinder oil.
60 Gallons kerosene oil.
200 Pounds grease.
10 Pounds piston packing.
10 Pounds valve stem packing.
100 Pounds boiler compound.

ATTORNEY'S REPORT.

To the Honorable Board of Water Commissioners:

GENTLEMEN: During the year ending November 30th, 1889, no claim for right of way has been presented for adjustment. The motion for a new trial in the case of Wilson & Rogers vs. The Board of Water Commissioners, referred to in my report for the year 1885, is still in court undecided.

On the 16th of December, 1887, summons and complaint were served on the president of this board by John B. Brisbin, Esq., attorney for Olive Biron, claiming damage for destroying mill site and diverting the water from Vadnais lake, in the sum of $48,000. The complaint was demurred to, and was submitted to the court on briefs on the 1st day of October, 1888, and on the 19th day of November, 1888, Judge Brill filed a decision sustaining the demurrer, and an appeal was taken to the supreme court. The cause came on for hearing October 8th, 1889, and was submitted on briefs by consent.

On the 29th of October, 1889, I was notified by the clerk of supreme court that an opinion was filed affirming the order of the lower court.

On the 1st day of March, 1889, summons and complaint was served in due form by S. & O. Kipp, attorneys for Edna P. Webb, asserting title to lot 1 of section 30, of township 30, of range 22, bordering Vadnais lake, and now owned by the City of St. Paul, and controlled by the Board of Water Commissioners. The answer denying the allegations in the complaint was filed on the 19th of March, 1889. Mr. Robert P. Lewis, the grantor to the city of the lot of land in litigation, is the party most interested; the suit is being conducted by Wm. K. Gaston, Esq., his attorney.

On the 6th day of April, 1889, summons and complaint was served in due form by E. M. Card, Esq., attorney for W. H. De Savigny, claiming damage for loss of potatoes, etc. This complaint was demurred to in time, and notice for argument has not been served to date; no other claim or suit against the board of commissioners are outstanding to my knowledge.

EXTENSION OF WORK—NEW LINE.

By the report of your attorney, dated November 30th, 1886, a line of levels was run, and two lines were suggested as eminently available for increasing the water supply, by extending the works then in use by making new lines in the direction indicated in that report.

By an extended examination by the president, and accompanied by the engineer employed by the board, it was determined by the board to extend their works on one of the lines suggested in the report of 1886, referred to above.

By resolution of the board of August 6th, 1889, the undersigned was directed to have a survey made for a new line of works, extending from Charles lake, in section 12, township 30, of range 23, the present westerly terminus of said waterworks, running northerly to Baldwin lake, in section 31, of town 31, of range 22, in Anoka county. On the 27th day of August, 1889, the under-

signed reported to the board of commissioners the completion of the survey, and submitted maps of the new line surveyed, showing land to be acquired for pumping station and right of way. By resolution passed by the board on the 27th of August, the new line as shown by the maps was adopted, as follows:

"*Resolved*,—That the maps 1 and 2 of the new line of works extending from Charles lake, in section 12, township 30, range 23, in Ramsey County, the present westerly terminus of said waterworks, running northerly to Baldwin lake, in section 31, township 31, range 22, in Anoka county, be adopted as the true and correct maps of the new line of works as required by section 7 of the legislative act, approved March 4th, 1885."

From that date work on the new line commenced in earnest. Plans and specifications had already been made by John B. Hawley, the constructing engineer of the board, and adopted by the board. These plans were for an open canal from Baldwin lake a distance of 500 feet, terminating in a suction chamber 16x12 square, and 14 feet deep. At the pumping station thence by a 24-inch iron pipe 1,050 feet to a terminal chamber 16x12 square, 14 feet deep, overcoming a raise of 19 feet by a new steam pump to be described; thence 10,725 feet by gravitation in open canal 6 feet wide on the bottom, to Charles lake.

After the new line of work was determined to be constructed, I purchased, by order of the board, 10 acres of land on Baldwin lake, the northern terminus of the work for pumping station and other erections; also the remaining water rights on the margin of Charles lake and other right of way, for which warranty deeds were taken and duly recorded. The amounts paid unto the different parties will be seen by reference to the report of the secretary of the board. The board of commissioners, after giving due notice and receiving different propositions for building the new line of work, in accordance with the plans and specifications on file, did, on the 27th day of August, award the contract to McArthur Bros., of St. Paul. The work was placed in charge of John B. Hawley, as constructing engineer, who has had full charge of work up to the present writing.

The contract with McArthur Bros. was dated August 27th, 1889, and required the contract work to be completed on the 1st day of November, 1889. An estimate of $4,440.00 was paid the contractors after the 1st of October. On October 31st I visited the line of work and found the work in an unsatisfactory condition and not finished, as we required by the contract. On the same day I did by letter instruct constructing engineer to make no more estimates until the contract was completed.

On the 19th of November I again visited the line of work, and found the work so far completed that water would undoubtedly flow uninterruptedly the whole length of the line of work. I found remainder of the work in an incomplete and unsatisfactory condition, and the contractor's men had gone from the work, and I was informed had left the work considering it completed.

I therefore by letter, dated the 19th of November, so modified my letter of October 31st, in so far that a second estimate might be made, based on the full amount of the contract, less the 20 per cent. reserved in the contract to cover contingencies and laches, until the contract is completed to the satisfaction of the board of water commissioners. This estimate No. 2 was made as

directed in the sum of $9,681.94, leaving the amount retained, of $3,530.48. The whole cost of the new line under the contract will be $17,642.42, exclusive of the cost of the steam pump.

STEAM PUMP.

The commissioners, after considering propositions from various steam pump manufacturing companies, did by the advice of their consulting engineer, Mr. H. H. Harrison, on the 24th day of August, make a contract with the Dean Steam Pump Co. of Holyoke, Massachusetts, for steam pumps and boiler complete with a guaranteed capacity of 10,000,000 gallons in every 24 hours, to be delivered on the cars at Holyoke, Mass., in ten weeks from the 17th of August, 1889; and on the first week of November machinery began to arrive in St. Paul. The contract price of the pump and boiler, complete, delivered in St. Paul, was $8,000, making the aggregate cost of the new line of works, $25,652.42.

At this writing the pumping machinery has all been placed in position under the direction of Mr. Burnham, the machinist sent by the contractors for that purpose. The pumps are in motion; the water is being forced through the 1,050 feet of 24-inch iron pipe, and is flowing satisfactorily the whole length of the canal in Charles lake, thence onward into Pleasant lake and on to the city.

SOURCE OF SUPPLY.

In regard to present and additional sources of supply of water, I cannot express myself better than to refer to my report of the year 1886. "It is demonstrated that the whole drainage of the Rice lake water shed contains an area of 154 square miles, adding four-fifths to the present supply of water. This, together with the forty square miles of drainage now received in the city, by the present completed works, would give a total of 194 square miles of drainage." Since that date other surveys have been made, and thirty square miles more may be added, making a total of 224 square miles of drainage ground.

If the floods of rain and melting snow that fall on this large area are wisely stored in the lakes that fill a large area of this drainage ground, there will be no want of water. But as it is, the daily use of water for the year 1889 is an average of 8,000,000 gallons per day, and this supply was entirely from the 40 square miles of drainage within the limits of Ramsey county, and there has been no want of water; the supply has been equal to the demand: yet the rainfall for the year 1889 has been less than 14 inches, whereas the normal rainfall for the last 30 years the records give at 28.30 inches, showing the fact that the year 1889, so far, has been the dryest year on record. Assuming as a fact that 40 square miles of drainage has given 8,000,000 gallons of water daily this year 1889, then under the same conditions and like circumstances governing the additional 184 square miles of drainage ground now tapped by the new line of works, would give an additional supply of 36,000,000 gallons, making an aggregate of 44,000,000 daily. And the character of the whole county being nearly alike in contour, and is dotted over with 40 sparkling lakes containing an area of 16,200 acres of water, or 25½ square miles of water. Assuming these statements and figures to be practically correct, there will be plenty of water for a long time. The rains will soon appear; the complaint will then be, there is too much rain. As to the quality of water used in St. Paul, 20 years' use have demonstrated its purity.

During the past fall and summer, considerable has been said in the newspapers and otherwise, in regard to new waterworks for the future, and where the water would come from. I have not found water in sufficient quantity to supply St. Paul with more water than the present system will give, as I have stated, without extensive pumping machinery, as it is always most desirable to supply large cities by gravitation if found expedient. The largest body of water of sufficient elevation that would permit the water to reach St. Paul by gravitation is the Mille Lacs, at an elevation of 378 feet above Vadnais' lake. This water can be brought in an aqueduct; the distance is 81 miles. The approximate cost of the conduit built by the Board during the year 1884 was $20 per lineal foot, exclusive of its appurtenances, It would therefore be safe to say this 81 miles of aqueduct would, in round numbers, cost $8,553,600. I trust the time is far remote when this sum of money will be required for the introduction of new water supply. The water shed of Mille Lacs is but small, and it is problematical if it could be relied upon to furnish a large supply for a city.

By consulting the reports of the chief engineer of the U. S. army, I could find no elevation on the St. Croix river of sufficient altitude to bring water by gravitation, until a point some distance above the mouth of Snake river is reached. I therefore dismiss the St. Croix river as impracticable for a gravity system. Water however can be pumped from the St. Croix river into the lakes now connected with our present system, should it in course of time be deemed necessary.

Another source of supply, if pumps are to be added, is the Mississippi river. Pumps can be placed 25 miles above St. Paul, and the water forced into our present system of lake storage through pipes, a distance of about seven miles.

In concluding this report, I can but say that John B. Hawley, your constructing engineer, is deserving of more than a passing notice. He came into this office at my instance over two years ago, a very young man. He had charge of the building of the high service reservoir, the plant and specification of the new line of works, and construction of the same, and has performed his work with zeal and ability, and is deserving of high commendation. And to the secretary of the Board, Mr. Caulfield, for his able and impartial advice at all times given, and his zeal in the administration of his office, the highest praise should be awarded.

Respectfully submitted,

S. P. FOLSOM, Attorney.

TREASURER'S REPORT.

OFFICE OF THE CITY TREASURER.
ST. PAUL, MINN., Dec. 1, 1889.

To the Honorable the President and Board of Water Commissioners of the City of St. Paul:

GENTLEMEN: I have the honor to submit to you the following report of the receipts and disbursements of this office from December 1, 1888, to December 1, 1889:

RECEIPTS.

Balance December 1, 1888			$15,457.70
Dec. 8,	J. Caulfield, Secretary	$5,000.00	
Dec. 11,	" "	3,500.00	
Dec. 17,	" "	2,000.00	
Dec. 21,	" "	1,500.00	
Jan. 2,	" "	4,000.00	
Jan. 24,	" "	11,000.00	
Jan. 29,	Proceeds of Bonds,	263,448.60	
Feb. 25,	J. Caulfield, Secretary	10,000.00	
Feb. 27,	" "	5,000.00	
Mar. 25,	" "	5,000.00	
Mar. 27,	Water frontage tax.	3,264.97	
Mar. 28,	J. Caulfield, Secretary	10,000.00	
April 6,	" "	9,000.00	
April 15	" "	2,500.00	
April 26,	" "	3,500.00	
May 31,	" "	5,000.00	
May 31,	Proceeds of Bonds,	109,752.50	
June 11,	J. Caulfield, Secretary	11,000.00	
June 22,	" "	5,000.00	
June 27,	" "	23,155.25	
July 1,	" "	3,000.00	
July 18,	Water frontage tax	49,713.95	
July 29,	J. Caulfield, Secretary	7,000.00	
Aug. 23,	" "	5,000.00	
Aug. 28,	" "	5,000.00	
Sept. 4,	" "	22,284.55	
Sept. 21,	" "	5000.00	
Sept. 28,	" "	6,000.00	
Oct. 1,	" "	2,000.00	
Oct. 7,	" "	15,000.00	
Oct. 8,	" "	24,908.10	
Oct. 28,	" "	13,000.00	
Nov. 1,	" "	10,000.00	
Nov. 8,	" "	5,000.00	
Nov. 14,	Water frontage tax,	2,087.09	
Nov. 22,	J. Caulfield, Secretary	10,060.00	
Nov. 27,	" "	7,406.18	
			$685,021.19
Total			$700,478.89

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DISBURSEMENTS.

Water Warrants Paid.		
December, 1888	$27,442.27	
January, 1889	202,533.41	
February	8,260.90	
March	62,733.31	
April	51,108.11	
May	58,306.42	
June	84,845.05	
July	53,558.25	
August	24,835.39	
September	27,830.70	
October	51,495.91	
November	38,409.08	
		$691,358.80
Balance December 1, 1889		9,120.09
Balance December 1, 1889	9,120.09	
Old Water Company Coupon account, balance December 1, 1889	193.63	
		$9,313.73

OLD WATER COMPANY COUPON ACCOUNT.

Balance December, 1888	$149.59

RECEIPTS.

Jan. 2.	J. Caulfield, Secretary	$6,416.00	
Jan. 29.	Proceeds of Bonds	160,040.00	
			$166,456.00
			$166,605.59

DISBURSEMENTS.

Jan. 4.	Coupons paid	$60.00		
Jan. 22.	Bonds paid	152,500.00		
Jan. 22.	Coupons paid	6,120.00		
Jan. 29.	Coupons paid	160 00		
Jan. 29.	Bonds paid	3,500.00		
Feb. 4.	Bonds paid	2,500.00		
Feb. 11.	Coupons paid	40.00		
Feb. 11.	Bonds paid	1,000.00		
Feb. 25.	Coupons paid	80.00		
May 23.	Coupons paid	40.60		
			$166,000.00	

EXCHANGE ON BONDS AND COUPONS PAID.

Jan. 23	$396.55		
Jan. 29	9.15		
Feb. 4	6.25		
		$411.25	
			$166,411.25
Balance December 1st, 1889, in Coupon Account			193.64
			$166,605.59

Respectfully submitted,

GEORGE REIS,

City Treasurer.

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